



FRIDAY, NOVEMBER 16, 1894.

CONTENTS

ILLUSTRATIONS:	PAGE		PAGE
Draft Riggings between Floor Sills of Freight Cars.....	784	Bridge Building.....	793
The Gould Freight Car Buffer.....	786	Meetings and Announcements.....	794
Standard Track of the Manhattan Railway.....	787	Personal.....	794
Diagrams of Tests on the Riehle Machine.....	788	Elections and Appointments.....	794
Climax Oil Injector.....	789	Railroad Construction.....	794
		General Railroad News.....	796
		Traffic.....	796
CONTRIBUTIONS:		MISCELLANEOUS:	
The Air-Brake Decisions.....	783	Technical.....	789
The Unit of Railroad Statistics.....	783	The Scrap Heap.....	789-793
The Locomotive and the Rail.....	783	The Brotherhood Suit Against the Reading.....	783
		The Great Pullman Strike.....	785
EDITORIALS:		Hours of Work for Railroad Men.....	786
Mr. Olney and the Rights of Labor.....	790	The Right of Eminent Domain as Applied to Rapid Transit Roads.....	787
State Railroad Control.....	790	A Foreign Dynamometer Car.....	788
Air-Brake Decisions.....	791	The Economic Load for Locomotives.....	788
Annual Reports.....	792		
Editorial Notes.....	790, 792		
GENERAL NEWS:			
Car Building.....	793		

Contributions.

The Air-Brake Decisions.

The New York Air-Brake Company, }
New York, Nov. 7, 1894.

TO THE EDITOR OF THE RAILROAD GAZETTE:

Is it not possible that in reviewing the recent Court of Appeals decision in your issue of Oct. 26, in the matter of *Westinghouse vs. The New York Air-Brake Co.*, you may have failed to get the full scope of the decision, or at least unintentionally have given your readers an interpretation of it not warranted by the facts? We think so, at least, and hence appeal to your sense of fair play to lay before your readers the New York Air-Brake Co.'s version.

'Tis true, and is conceded by the New York Air-Brake Co., that the highest court has by this decision determined the *Westinghouse* Patent 376,837 to be valid, but nevertheless it is equally true that it is limited to *auxiliary reservoir pressure*. As the New York Air-Brake Co.'s valves at the time this suit was begun and up to Judge Townsend's decision, were operated by *auxiliary reservoir pressure*, such New York Air-Brake Co.'s valves were held to infringe, and the injunction granted by Judge Townsend remains in force. But in relation to 448,827, the contention was for an emergency valve not controlled at all by the triple valve. This patent was declared void, not, as you state, because it is fully covered by 376,837 (the language of Judge Shipman can only be so tortured by parties in interest), but because 448,827 was originally in 376,837, and was extracted from that and made the subject of another patent, 448,827, and which Judge Shipman says is only another form of 376,837, i. e., another way of operating the emergency than in 376,837, but limited as in 376,837 to *auxiliary reservoir pressure*. Hence it must follow that a valve such as the New York Air-Brake Co. has been making since Judge Townsend's decision, operated by *train pipe pressure*, is by the Court of Appeals' decision free and clear from the only patent, 376,837, sustained for the *Westinghouse* Co.

Bear in mind that the Park patent, which operated by train pipe pressure, and which patent had been purchased by the *Westinghouse* Co., was part of the suit, and it was under the Park patent that the *Westinghouse* Co. had hoped to cover *train pipe pressure*, which the New York Air-Brake Co. uses to actuate their present mechanism. This was decided by Judge Townsend in favor of the New York Air-Brake Co., and sustained by the Court of Appeals.

Much stress is also laid upon the decision *vs.* the New York Air-Brake Co., on the engineer's valve, which is another bold attempt to intimidate railroads from buying the goods of the New York Air-Brake Co., whereas the decision of Judge Townsend, sustained by the Court of Appeals, is the very bulwark upon which the New York Air-Brake Co. rest their claim that their present engineer's valve is entirely free from all contention of infringement. The engineer's valve in suit was a failure, and was discarded by the New York Air-Brake Co. soon after suit was commenced. The present standard engineer's valve has been in use for nearly three years, and is not the subject of any litigation whatever, and the *Westinghouse* people know that fact very well.

The result to any fair-minded and intelligent person conversant with air-brakes, of a careful reading of the decision of the Court of Appeals will be to convince him that the present valve of the New York Air-Brake Co. is absolutely free from any of the patents which were involved in the case just decided by the Court of Appeals, and that the New York Air-Brake Co. is free to make it, and the railroads to use it.

THE NEW YORK AIR-BRAKE CO.

[The two triple valves and the engineer's valve, which have been subject to both mechanical and judicial trial, are enjoined. The triple valve, which, it is claimed, has been judicially declared free and clear, is at this moment the subject of another law suit. This expresses the present situation in the fewest words. It is discussed, however, more in detail in the editorial columns.—EDITOR RAILROAD GAZETTE.]

The Unit of Railroad Statistics.

BELLEVILLE, Kan., Nov. 4, 1894.

TO THE EDITOR OF THE RAILROAD GAZETTE:

A newspaper of late date claims that our current statistics relative to comparative cost of transportation on the railroads of America and Europe are grossly inaccurate and misleading owing to the difference (in length) of the American and European mile. And it was further asserted that the mile of some nations is more than five times the length of the American mile. On investigating this matter I find that the miles of certain nations range from three to five times the length of our American mile. And if this is true, it brings up the following questions.

(1) Are the railroads of Europe measured by the mile of their respective nations?
(2) Do our Interstate Commerce Commissioners and other American statisticians always use the American mile as a basis in computing the comparative cost of transportation on American and European roads?

I find occasional statements in your journal relative to the number of cross ties used per mile on European roads, which satisfy me that the American mile is used as a basis of computation in such cases. But it would be desirable to have the above questions correctly answered by reliable authorities, as it may prove useful in preventing the spread of erroneous statements on this subject by people who advocate the Government ownership of railroads in this country.

D. SWEENEY.

[One need not be surprised at any statement made about railroads by a Kansas newspaper, and yet it does seem strange that any newspaper should be troubled by such an obvious mare's nest as our correspondent has pointed out. The official railroad statistics of most of the countries of the continent of Europe are reported in kilometers; in Russia they are in versts. Of course any statistical publication of any authority whatever, in making comparisons converts the statistics of different countries to common units. We wonder that it did not occur to the editor who has alarmed our correspondent that the cent of the United States is a coin of very different value from the cent of France.—EDITOR RAILROAD GAZETTE].

The Locomotive and the Rail.

TO THE EDITOR OF THE RAILROAD GAZETTE:

I have read with a great deal of interest the letters by "Headlight," and I agree with him as to the unbalanced features of modern locomotives, and as to their consequent injury to track and bridges. In fact, this is acknowledged by all engineers who have been connected with the maintenance of way. "Headlight" suggests that it would be better to remedy this mechanical defect in the motive power than to put down heavier rails.

The mechanical departments of railroads have been trying for years to overcome this mechanical difficulty without having accomplished it to any satisfactory degree, and as the speed of trains has been increased and also the weight of engines in the last year, this unbalanced feature begins to show itself more plainly. The subject of balancing has received the attention of marine and stationery engineers with good results. Therefore if "Headlight" has discovered how this may be accomplished on the locomotive, it would be well to enlighten the railroad people in regard to it, and stop the useless expense of heavier rails.

ENGINEER.

The Brotherhood Suit Against the Reading.

Several weeks ago lawyers for the Brotherhood of Railroad Trainmen applied to the United States Circuit Court in Philadelphia for an order directing the Receivers of the Philadelphia & Reading to suspend action under the rule of the road prohibiting employees from belonging to labor organizations. Since the last serious strike, it has been the aim of the officers of the road to employ no new men except under an agreement not to belong to a brotherhood, but it appears that certain employees joined brotherhoods, or retained memberships, in spite of this rule, and when this was discovered some men were discharged. The Brotherhood lawyers took up the cases of a number of these discharged men. The road showed that one was discharged for incompetency; in another case the officer employing the man had neglected to exact the agreement and the employee was taken back; in other cases there were other complications, and the question has been before the court several times, the counsel on both sides making long and technical arguments. On Thursday last the counsel for the Brotherhood men asked leave to present to the Court a letter from Mr. Olney, Attorney General of the

United States, and there was at once a decided sensation. Mr. Dickson, counsel for the Receivers, objected strenuously on the ground that the Attorney General had no standing in court, and argued at length on the impropriety of his action. Judge Dallas stated that Mr. Olney had asked, in a tentative way, about three weeks before, if he might present the suggestions; that a conditional reply had been made and that Mr. Olney then decided not to intervene; that within a few days he had reconsidered this decision and had sent on a long letter; Judge Dallas had not yet read it. At the suggestion of Judge Dallas (when first applied to) Mr. Olney had sent copies of the letter to counsel on both sides. The letter was finally admitted by the Court as a part of the argument of counsel for the Brotherhood men, and to this Mr. Dickson made no objection.

Following is the substance of Mr. Olney's letter:

"The pendency of this petition having been incidentally brought to my attention the issues raised impressed me as of great gravity and importance, not only as between the parties immediately concerned, but as regards the country at large. In that view—in which I could not doubt the Court would share—it seemed to me that the Court would not object to a brief discussion of the case from a public point of view merely and uninfluenced by the wishes and interests of the particular litigants before it. Upon this suggestion being made to the Court it was at once cordially assented to. The considerations following, therefore, are submitted by me as *amicus curiae* merely, and by express leave of the Court.

Mr. Olney then goes on to state the facts; that the petitioners are members of the Brotherhood of Railroad Trainmen; have been such seven or eight years; have paid dues and assessments and will suffer financial loss if they give up their membership. The Reading has had no quarrel with this Brotherhood or with its members, as members. The rule of the road that it will not employ Brotherhood men has not been uniformly enforced. The Receivers make no complaint of inefficiency, but issued the notice simply because the employees are members of the Brotherhood. In stating this fact to Grand Master Wilkinson, Mr. Harris signs himself as President and Receiver. Mr. Olney reminds the Court that Mr. Harris as President no longer has control of the employees and the policy of the railroad company, mentioned by him, is now of no consequence. It is submitted that the Receivers are wrong in adopting this rule of the company and that the Court should not sanction their action. The Court, and not the company, is the employer of all the persons engaged in the operation of the road.

Extracts from the constitution of the Brotherhood are then quoted to show that its objects are not only lawful, but laudable. The letter continues:

"Certainly, these objects must be regarded as laudable in the highest degree and as deserving the approbation and support of every good citizen. They are, indeed, practically the same as those for which working people are expressly authorized to incorporate themselves by act of Congress. . . . If the means to these praiseworthy ends be now examined there is nothing in them to which the most cautious critic can object except the provisions made for strikes.

"It is well to note that even these provisions are of an eminently conservative character—that great care is taken to guard against the abuse of a weapon which is a two-edged sword and generally proves as damaging to those who use it as to those against whom it is used.

"Thus, by the Brotherhood constitution and rules, a strike does not take effect till approved, first, by the Local Grievance Committee; second, by the General Grievance Committee; third by a Board of Adjustment, and fourth, by the Grand Master, with the consent of two-thirds of the members involved—while striking or inciting to strike except in accordance with the above rules is punished by expulsion from the Brotherhood.

"Nevertheless, among the means of accomplishing the ends of the Brotherhood is the bringing about of a 'strike.' As to what a 'strike' is not defined by the Brotherhood constitution and rules; its precise nature must be determined by the Court; and, as the Brotherhood is entitled to the ordinary presumption of lawfulness for its methods as well as its objects until the contrary is shown, the Court will hold the thing termed 'strike' to be something lawful."

Mr. Olney then goes on to show that a strike is not necessarily unlawful, referring to Judge Harlan's recent decision at Chicago, and continues:

"If the rule that a member of the Brotherhood of Railroad Trainmen shall not work on the Reading road cannot be justified because of anything inherently unlawful in the constitution and rules of the Brotherhood, the only remaining ground on which it can be defended is that of business expediency.

"That question is presented because, in operating the Reading Railroad so as to secure the best results for the public and all private parties interested, the Court is unhampered by any express statutory provision and has all the liberty of choice belonging to employers generally.

"It is conceivable, therefore, though the spectacle would be a curious one, that a court of the United States may, on business grounds, refuse employment to persons for no other reason than their membership of an association whose purposes the laws of the United States expressly sanction.

"It is conceivable, also, that a Court of the United States, also on business grounds, may attach to employment by its Receivers a condition which employers of labor generally in very many States of the Union are prohibited from imposing under penalty of fine and imprisonment.

"But it is safe to say that the considerations of business policy impelling the Court to the course suggested should be of the clearest and most cogent character, and that the question presented is one which the Court will recognize as of the greatest interest and importance.

"It involves the right of labor to organize for the settlement of differences between it and capital, whose right to organize is apparently not denied.

"How the ordinary employer of labor may answer such a question, whether mistakenly or otherwise, is of comparatively little consequence.

"But, when the Court is the employer, any mistaken decision may work infinite mischief, both because until corrected it lays down a rule of action for other like cases, and because, so far as the mistake is recognized, it impairs the confidence of either the employer or the employed or both in the impartiality or capacity of the judiciary.

"In considering the question of the business expediency of the employment of Brotherhood men, such objection as there is to it must arise from the fact that, under its constitution and rules, the employees may engage in a strike, with all the natural and possible incidents and consequences. It can hardly be denied that otherwise

the Brotherhood organization is not only not objectionable, but is salutary in its operation both as regards the employers and the employed. It is the strike feature, and that alone, which from a business point of view, can induce the Court to brand the Brotherhood as unfit for its service. It is submitted that that feature should not be allowed to have that effect for various reasons.

"It should be remembered, in the first place, that the risks of a strike are not obviated by excluding the members of the Brotherhood from the Receivers' service. Men deeming themselves aggrieved and seeking relief or redress, though not associated in any formal way or for any general purpose, may easily unite for the single purpose of a strike. In that view the Brotherhood constitution and rules may well be regarded as operating in restraint of strikes. By compelling the question of strike or no strike to be acted upon affirmatively by four or five different and independent tribunals, they certainly tend to prohibit a strike that is rash or reckless, or for other than weighty cause. Let it be borne in mind in the same connection that when a railroad or any other business concern is operated by Receivers the violence and lawlessness and other abuses of a strike are both less likely to develop than in other cases, and, if developed, are much more readily dealt with. Employees, who understand they are officers of the Court, will be slow to antagonize its authority, and if they do can be summarily controlled and punished through the process of contempt.

"While, therefore, under the circumstances of the present case, the possible evils of a strike would seem to be minimized, it should not be forgotten, in the second place, that the Receivers' proposed remedy, to wit, a rule excluding or discharging from service any or all members of the Brotherhood, is itself open to serious objections and disadvantages. The best service is not to be expected from employees who smart under a sense of injustice and are in a chronic state of discontent. Yet such is the inevitable condition of employees whose right to organize for mutual protection and benefit is attacked, and whose opportunities to labor is conditioned upon the sacrifice of that right. They cannot help noting that organized capital is not so restricted. And, when treatment so apparently unfair and discriminating is administered through the instrumentality of a Court, the resulting discontent and resentment of employees are inevitably intensified, believing the law itself to have got wrong and in some unaccountable manner to have taken sides against them.

"Thus, the mischiefs apprehended from membership of the Brotherhood by the Receivers' employees lie wholly in the future and are as small as is possible in the nature of things; while the mischiefs to arise from enforcing the Receivers' proposed rule are real and immediate. Whether and how far they may be regarded as offsetting one another need not be discussed. The rejection of the proposed rule may reasonably be expected to be attended with such substantial advantages that the Court can hardly hesitate as to the course which sound business policy dictates.

"To begin with, not the least of such advantages is the avoidance of the necessarily invidious, if not illegal, position, that a man shall go without work unless he will give up a legal right—a right he may properly deem essential to his safety and welfare.

"A correlative advantage is the conciliation of the employed through the full recognition of their rights and the clear indication of an honest purpose that no injustice to them is meditated.

"Another advantage is the practical proof thus given that the great social problem of the day and the phase it has now assumed are fully appreciated. Whatever else may remain for the future to determine, it must now be regarded substantially settled that the mass of wage-earners can no longer be dealt with by capital as so many isolated units. The time has passed when the individual workman is called upon to pit his feeble single strength against the might of organized capital. Organized labor now confronts organized capital. They are best off when friends, but are inevitably often at variance. As antagonists neither can afford to despise the other, and the burning question of modern times is: How shall the ever recurring controversies between them be adjusted and terminated? If the combatants are left to fight out their battles between themselves by the ordinary agencies nothing is more certain than that each will inflict incalculable injury upon the other, while whichever may triumph will have won a victory only less disastrous and less regrettable than defeat.

"No better mode for the settlement of contests between capital and labor has yet been devised or tried than arbitration, and another and crowning advantage of the course of action here advocated is that arbitration as the mode of settling differences between capital and labor must necessarily be applied in the course of the Receivership, and arbitration in its best and most effective form. The Court, by appointing Receivers, constitutes itself not only an employer of labor, but the arbitrator of all disputes between it and the Receivers, who may justly be regarded as representatives of capital. It occupies the dual capacity of employer and arbitrator, naturally and inevitably. It is an arbitrator whose wisdom and impartiality are—certainly should be and must be assumed to be—beyond suspicion. It is an arbitrator capable of acting rapidly and summarily, if need be, and invested with power to enforce its own awards. It is an arbitrator with whom both parties have reason to be satisfied, both from its character and its ability to make its awards effective, and might well be expected to furnish, should circumstances permit or require, a conspicuous object lesson illustrative of the value of the arbitration principle.

"In short, the question being whether business policy requires the Court to approve the rule that a member of the Brotherhood of Railroad Trainmen is *ipso facto* ineligible as an employee of the Receivers of the Reading Railroad and officers of the Court, the conclusive considerations against the rule may be summed up as follows:

"1. The rule is of doubtful value as a prevention of strikes, because it leaves employees to act upon impulse and from passion, and freed from the restraints of the Brotherhood regulations.

"2. The rule is of doubtful value when the Court is the real employer, both from the reluctance of the employed to defy the Court's authority and from the power of the latter to speedily and summarily vindicate it.

"3. The rule is of positively injurious tendency in the disaffection and discontent engendered among employees by the denial to them of rights enjoyed by citizens generally and deemed necessary for their security and comfort.

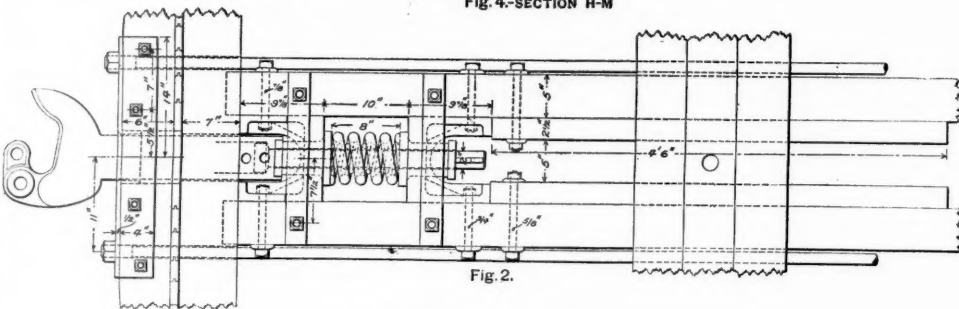
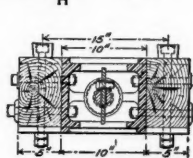
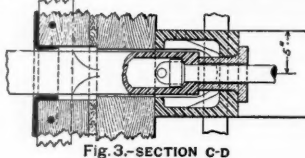
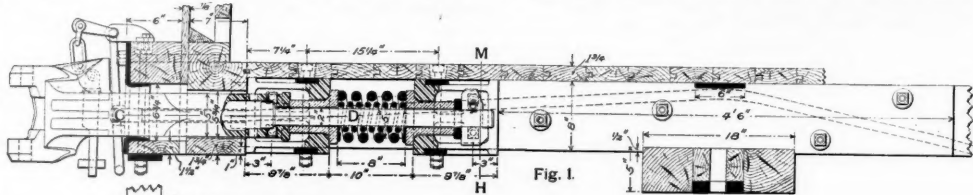
"4. The repudiation of the rule, on the other hand, has the positive merit (A) of tending to secure for the service the good will of employees, and thus promoting its efficiency; (B) of recognizing the real conditions of the capital and labor problem and the fact that labor both has the right to organize and is organized; (C) of illustrating the working under the most favorable auspices of the principle of arbitration as the means of adjusting the differences between capital and labor; (D) of demonstrat-

ing that there is not one law for one class of the community and another for another, but the same for all, and of thus tending to preserve for the law and for the judiciary by which it is administered that general respect and confidence which have always been a marked characteristic as well as excellence of our institutions.

Draft Rigging Between Floor Sills of Freight Cars.

One of the questions for topical discussion at the October meeting of the Western Railway Club was, "Freight Draft Rigging Between Floor Sills," and so far as the discussion went there seemed to be but two opinions on the subject: One opinion, held generally by those who have had no experience with draft rigging placed between the floor sills, was founded on the objections raised when the proposition of placing the draft rigging between the center sills, was first made; that the amount of material that must necessarily be removed from the end sill to make room for the shank of the coupler, weakens the end sill very materially; and further, that as the new arrangement made it necessary to attach direct to the center sills instead of to auxiliary draft timbers, as in the old design, the center sills would be broken frequently and therefore the cost of repairs greatly increased. There was offered also the old objection to making the floor line of the car 8 in. lower than the present practice because of the necessity, and at great cost, of lowering the station platforms to correspond with the height of floor line. The other opinion, held by those who have had experience with cars in which the draft rigging is between the floor sills, was that when the end sill is reinforced, as can be done readily and cheaply, the number of breakages of this member is no

is shown in figs. 1 to 4 inclusive. These cars have been in use about two years now and although the connections are made direct to the center sills, no difficulties have been met with on this account. Fig. 1 shows a vertical section made longitudinally at the center of the car; fig. 2 shows the plan; fig. 3 is a sectional view horizontally through the center of draft rigging; and fig. 4 shows a cross section through the key in the tail-pin. Referring to figs. 1 and 2: The center sills are reinforced back of the draft rigging by means of timbers 8 in. by 2½ in. and 4 ft. 6 in. long. These timbers extend about 18 in. back of the bolster and are bolted to the inside of the center sills with four ¾-in. bolts. The rear draft casting butts against the ends of the reinforcing timbers and has also two ¾-in. bolts horizontally through each sill. This casting is in two parts, duplicates of each other, and, therefore, does not tie the sills together. The sills are tied together by, and the draft castings partly supported by, two cross straps 2½ in. by ¾ in., which are bolted vertically to the center sills, the bolt heads being flush with the top of the floor. The draft casting flanges over the cross straps in such a way that the straps receive a part of the buffing strains. The follower is of cast steel and 5½ in. long. The illustrations show clearer than can be described in words the relation of follower and draft casting. The forward end of the rigging is a duplicate of the rear end, the draft casting bearing against the end sill. A tail-bolt is used together with a washer and key at the rear end. The end sill is reinforced by a timber, placed outside of the sheathing, in dimensions 13 by 5½ in., the outside face of which is protected by a striking plate ¾ in. thick, 13 in. wide and 28 in. long; the plate has a deep flange around the opening for the coupler. Two 1½ in. longitudinal truss rods bind well together the reinforcement, end sills and center sills and there are also



Draft Rigging—Pennsylvania Lines.

greater than when the old arrangement is used; also, that the attachment to the center sills can be and has been made in such a manner that but few breakages of such sills occur, the repairs to draft rigging costing less than with the arrangement, at present, prevailing. Cars with the lower floor line have been in use on the different roads for from six months to five years and no complaints have been heard of difficulty in loading.

There is quite a decided and increasing sentiment in

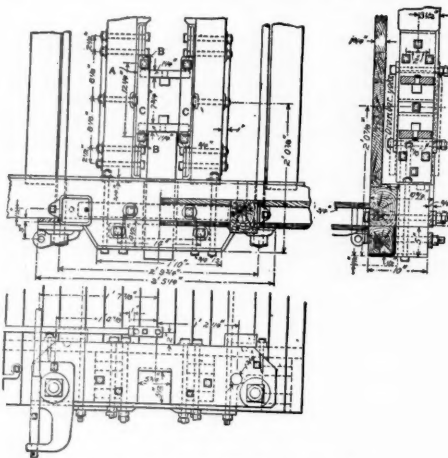


Fig. 5.—C. B. & Q. Draft Rigging.

favor of locating the draft rigging between the floor sills and a description of several such arrangements that are in use and are reported as giving satisfaction will be timely.

The draft rigging used on some 40-ft. furniture cars of Pennsylvania lines west of Pittsburgh, Northwest System,

two 1 in. bolts binding together the striking plate, reinforcing timber and end sill.

We have previously, March 10, 1893, shown the draft rigging used on the Chicago, Burlington & Quincy, but reproduce the cuts now in fig. 5 so that the design may be more readily compared with others that are now shown for the first time. In this arrangement a plate is bolted to the inside face of both center sills, there being seven bolts in each plate. There is a projection at the middle of each plate and this is recessed into the sill. The same bolts receive both the buffing and pulling strains, but the former are also resisted partly by the ends of the plates butting against reinforcement timbers which are bolted to the center sills and extend back to the bolster; the latter are met partly by the plates bearing against the end sill. The spring pocket with followers and carrying plates are similar to those in ordinary construction where a yoke is used instead of a tail-bolt. The end sill is reinforced by a short timber which extends just over the center sills but the striking plate bends around the ends of this block and is secured by the truss bolts. There are also two other bolts extending through the plate, reinforcing timber and end sill.

The draw gear that is in use on some 40-ft., 60,000 lbs.-capacity furniture cars of the Lake Shore & Michigan Southern, is illustrated in figs. 6, 7, 8 and 9. Fig. 6 shows the elevation, in section, and Fig. 7 shows the plan. The center sills are reinforced both on the inside face and on the bottom. The reinforcement on the side is the most important one and it will be observed how it is bolted to the sills and the shearing wedges inserted in the joint. The timber is 7 in. by 4 in. and extends about 18 in. back of the bolster. The draft castings are in two parts, one bolted to each sill; the bolts are five in number for each piece and pass through the center sill and reinforcing sill. There are also on each casting, two transverse projections that are recessed into the reinforcing timber. The drawing shows the gear as adapted for tail-pin, but it is probable that this will be replaced by

the yoke arrangement in the near future. A plate 3 in. by 1/4 in. protects the sills from being gouged by the spring followers. An opening is left in the flooring just above the tail-pin key and covered by an iron plate 1/4 in. thick; this is a provision for facilitating repairs. The end sill is reinforced by a block 4 1/2 in. thick that projects just over the center sills and by two bars 3 in. by 1/2 in., one of which is above the coupler and the other below. These bars are placed with edge in direction of the shocks. There is also the usual striking plate. The end sill is held to the floor sills by means of two hook bolts and by two other bolts that extend back to the bolster. The striking plate, reinforcing block and end sill are bound together by means of several 3/4-in. bolts. It will be observed that the timbers which are bolted to the under side of the center sills are bound together by a 3/4-in. bolt, a 2-in. flat bar and a spacing block, which is 4 1/2 in. by 3 in.

A comparison of these three designs of draft rigging shows that in each the buffing and pulling strains are transmitted to a different part of the sills and in a different way. In the Pennsylvania design the pulling and buffing strains are carried to the sills by separate sets of bolts; the pulling strains being carried by the bolts which pass through the casting at the outer end of the center sills and by the end sill and transferred back partly through the medium of the truss bolts; the buffing strains are transmitted through the bolts that secure the rear casting to the sills and by the reinforcing timbers on the center sills. The pulling strains come on the outer end of the sills and the buffing strains are received farther back on the sills. In the Chicago, Burlington & Quincy design all strains are carried on the same bolts, hence to the same part of the center sills; but the end sill and its reinforcement assist in resisting the pulling strains while the auxiliary timbers on the center sills assist in resisting the buffing strains. The design of the Lake Shore & Michigan Southern rigging resembles more nearly than do the other two designs, the plan at pre-

believed it wise to permit the broadest latitude of inquiry.

The money losses are summed up below:

The railroads directly.....	\$685,308
The railroads in earnings.....	4,672,916
Pullman employees in wages.....	350,000
Railroad employees.....	1,389,143
Total.....	\$7,097,367

Many of the employees are still adrift and losing wages and the figures above are given by the Commission not as accurate but as the minimum. Besides these amounts, very great losses were incidentally suffered throughout the country.

The casualties, arrests, etc., are summarized below:

Shot and fatally wounded.....	12
Arrested by police.....	575
Arrested under United States statutes and indicted.....	71
Arrested, not indicted.....	119

Neither the indictments nor the proceedings were had under the Interstate Commerce Act as has been sometimes stated. The troops and peace officers called to the protection of property and the preservation of order were as below:

United States troops.....	1,936
State militia.....	4,000
Extra deputy marshals, about.....	5,000
Extra deputy sheriffs.....	250
Police force of Chicago.....	3,000
Total.....	14,186

The report gives a summary of the organization and operations of the Pullman Co. and of the condition of affairs at the town of Pullman. It is said that the main object in building this town was the establishment of a great manufacturing business on a substantial and money-making basis. Efficient workmen were regarded as essential to its success and it was believed that they could be secured, held in contentment and improved for their own sakes and for the benefit of the company by the accommodations and surroundings provided.

The library is well selected and cared for, only \$3 a

A sketch is given of the organization of the American Railway Union, its alleged membership and the principles that are supposed to guide its conduct. The principles are well enough as laid down, but the Commission says the great inherent weakness of such organizations is that in contention with employers these principles are forgotten and strikes are then ordered in hasty and disorderly ways and conducted with violence and lawlessness. As an instance, the strike on the Rock Island road was ordered by a meeting attended by railroad employees and persons not in the employ of the road; and amid confusion and uncertainty as to what the vote was or who the voters were, a strike on a great railroad system was inaugurated. A recognition of the principle that under this government wrongs must be corrected in lawful and orderly ways is absolutely indispensable. The omission of a provision in the constitution of the American Railway Union for the punishment or disqualification of a member who commits or instigates violence is a grievous omission and deserves severe condemnation. Until labor organizations control their own members effectively they are certain to lose sympathy. The admission of the Pullman employees into the Union is thought by the Commission not to have been expedient, and this mistake led the Union into a strike purely sympathetic and aided in its crushing defeat. It is considered true also that the officers and directors of the Union did not want a strike at Pullman. In closing its discussion of this special Union the Commission says that to preserve the integrity of associations designed to organize labor on such a broad basis, but two courses seem open: To take a position against all strikes except as a last resort for unbearable grievances, and to seek conservative leadership, legal status and the education of members in governmental matters.

The Commission next takes up the General Managers' Association, formed in 1886, being a voluntary association, not incorporated. It consists of the 24 Chicago railroads operating nearly 41,000 miles, having over 52,000

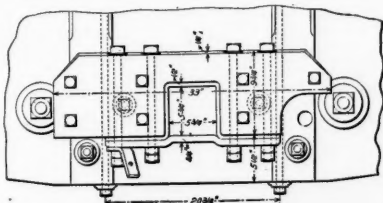


Fig. 8.

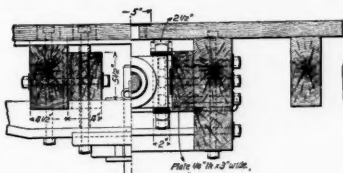


Fig. 9.

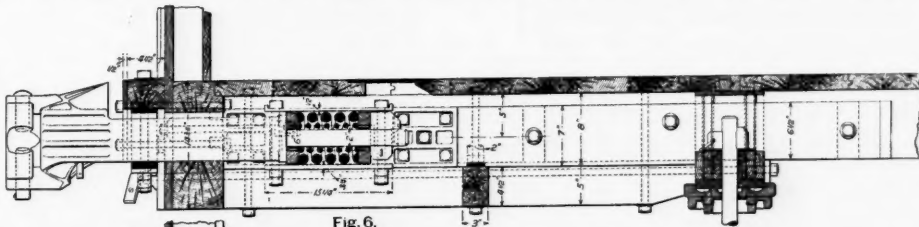


Fig. 6.

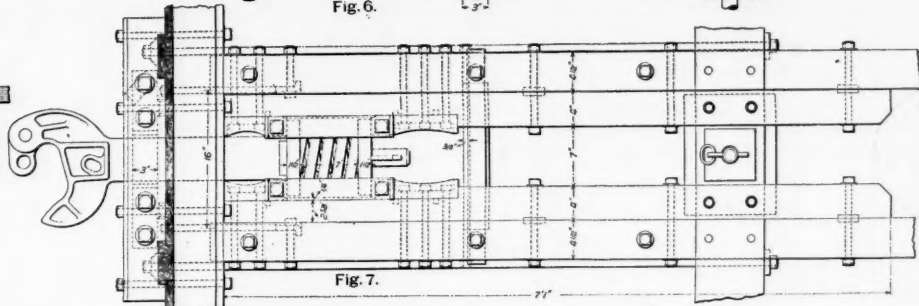


Fig. 7.

Draft Rigging—Lake Shore & Michigan Southern.

sent, prevailing of bolting separate draft timbers to the center sills. In this design the different strains are transmitted to the sills through the same set of bolts but the strains are distributed over a greater length of sill. The Chicago, Burlington & Quincy experienced some trouble with the first method used to attach the rigging to the sills, but with the design shown no difficulty has occurred. It will be noticed that in this design no special provision has been made to bind the two center sills together, dependence probably being placed on the floor to accomplish this. Such provision is made in the rigging of both the Pennsylvania and the Lake Shore & Michigan Southern. No trouble has been experienced in any of these cases with the between sills draw gear and it has not been necessary to replace any center sills.

The Great Pullman Strike.

We have received advance sheets of the report to the President and Congress of the United States Strike Commission appointed last summer by the President to investigate the Pullman strike. The Commission consisted of Hon. Carroll D. Wright, Commissioner of Labor of the United States; Mr. John D. Kernan, formerly Railroad Commissioner of the State of New York, and Mr. Nicholas E. Worthington, of Illinois, a United States Judge. The Commission was temporary; its existence ceases on submitting the report. It was appointed specifically to inquire into the causes of the dispute, the conditions accompanying it and the best means of adjustment. It examined in all 109 witnesses; there was a general invitation to parties "having a personal or patriotic interest in the question" to send their views and suggestions in writing to the Commission. As the Pullman employees had very generally become members of the American Railway Union in March and April preceding the strike, and as the railroad companies named in the President's commission were members of the General Managers' Association the Commission considered the contest chiefly between those two organizations, but it

year is charged for its use and some 250 persons a year, out of a total of between 4,000 and 5,000 employees and residents, have at times availed themselves of its privileges. The Commission suggests that the exclusion of these people from any part in the management of the library may prevent more universal acceptance of its advantages by employees than would otherwise be taken. The company provides and pays a physician and surgeon by the year to give the injured employees necessary treatment and medicines. It is also a part of his duty to secure from the injured party a written statement as to the causes of injury, and it is his custom to urge the acceptance of any offered settlement. There is no evidence that the doctor has ever abused his confidential relations towards the injured employees, but the system is admirably conceived from a business standpoint to secure speedy settlement and to protect the company. Up to June, 1893, no disturbance had been caused by the conditions obtaining at Pullman.

The table below shows the deposits in the Pullman Loan & Savings Bank on which there has been paid uniformly, and without any recent reduction, 4 per cent. per annum.

Date.	Employees Depositing.	Percentage of Employees Deposits.	Total.	Average Amount of Deposit.
July 1, '93.....	2,425	88 1/2	\$582,380	\$240
May 1, '94.....	1,679	86 1/2	422,834	252
June 1, '94.....	1,539	82 1/2	383,590	249
July 1, '94.....	1,414	80	364,455	258
Aug. 1, '94.....	1,212	85	303,088	250

About one-half of the accounts are under \$100 and five-sixths under \$500. The table shows how the cutting down of wages and the strike ate into savings.

As the result of the Pullman system there is found on one side a wealthy and unyielding corporation and on the other employees of good character and skill, but without local attachment or interested responsibility in the town, its business, tenements or surroundings. The conditions enabled the management to assert with great vigor its assumed right to fixed wages and rents and to repress the independence which leads to labor organizations and mediation, arbitration, strikes, etc.

stockholders and 221,000 employees. Prior to the recent strike it was chiefly concerned with other matters than wages, but it had prepared elaborate schedules showing the wages paid upon all the lines belonging to the association with the object of letting each road know what other roads paid. It was well understood that as to wages it was an incident of the association to assist each road in case of trouble, one way being for the association to secure men to take the place of strikers. It is admitted that the action of the association tends to establish one uniform scale of wages throughout the country.

The Commission questions whether any legal action can be found to justify some of the features of this association. It cannot incorporate; it is a usurpation of power not granted; it is an illustration of the persistent and shrewdly devised plans of corporations to overreach their limitations. The refusal of the association to recognize and deal with the American Railway Union seems to the Commissioners arrogant and absurd.

The next topic is the strike, its cause and effects. The facts are recited of the gate reduction of work and wages throughout the country. From Sept. 18, 1893, until May 1, 1894, the company did contract work to the price of \$1,421,000, losing thereon over \$52,000 in shops, cost of labor and materials. Against this last the workmen lost in wages over \$60,000 on the basis of the wages of June, 1893, but the average percentage of total cost of material in this contract work was about 75, and therefore the Commission thinks that the company should not have compelled the workmen to bear so great an amount of the entire loss as they did bear; that is, that three-fourths of the loss for the company and the balance for labor would have been fairer. It appears that the salaries of officers, managers and superintendents were not reduced, and the Commission concludes from the evidence that the company sought to keep running mainly for its own benefit as a manufacture, that its plant might not rust, that its competitors might not invade its territory, etc.

The Commission finds also that rents are in Pullman from 20 to 25 per cent. higher than in the surrounding

towns for similar accommodations, leaving out the esthetic and sanitary features. To be sure, at the time of the strike there was about \$70,000 of unpaid rents which was due to leniency on the part of the company, and also it is true that no actual evictions have taken place.

The strike came about through the demand of the employees in the spring of 1894 for the wages of June, 1893, and this the Commissioners consider clearly unjustifiable. The reduction was carried to excess, but the company was hardly more at fault therein than were the employees in insisting upon the wages of the previous June. There was little discussion as to rents, the company maintaining that rents had nothing to do with wages. According to the Commissioners the strikers behaved well in not disturbing the property of the company during the strike.

The Commissioners conclude that the American Railway Union officers were not directly responsible for violence or destruction of property. Strikers were concerned in the outrages, but the number was small as compared with the whole number out. The interference with the movement of trains was sufficient evidence of the skill of the men who were striking; but most of the violence after July 3 was committed by crowds of hoodlums, women, and a low class of foreigners and recruits from the criminal classes.

CONCLUSIONS.

Finally, we come to the conclusions and recommendations of the Commissioners. It is found that there is generally concurrence, even among labor leaders, against strikes, boycotts and lockouts, and that much progress has been made toward conciliation and arbitration. The general sentiment of employers too is favorable to organization among employees, which results in a clearer presentation and calmer discussion of differences, and instills mutual respect and forbearance, etc. But however men may differ about the propriety and legality of labor unions we must all recognize the fact that we have them with us to stay and to grow more numerous and more powerful. Is it not wise then to duly recognize them by law, to conserve their usefulness, to increase their responsibility and to prevent their follies and aggressions by conferring upon them the privileges enjoyed by corporations, with like proper restrictions and regulations.

The Commission does not recommend any specific remedies, thinking such premature. It does think that we should inaugurate a permanent system of investigation into the relations between railroads and employees. The right of Congress to legislate in regard to the conditions of employment of the service on interstate railroads seems by analogy to exist and the question is one of expediency. Power to review and enforce the just and lawful decisions of the Commission against railroads ought to be vested in the United States courts. That which is done under the Interstate Commerce Act as to rates, etc., ought to be done as the wages by the Commission and the courts. Stability and time for adjustment can be secured by providing that labor unions shall not strike pending hearings which they seek, and that railroads shall not discharge men except for cause during hearings or immediately thereafter. A provision may be added requiring employees during the same period to give 30 days' notice of quitting, and forbidding their unions from ordering or advising otherwise. The arguments against arbitration are held to have less weight in the case of railroads than in other industries. The Commission contends that law should make it obligatory upon some public tribunal promptly to intervene whenever a difficulty of the character of that occurring at Chicago arises, and this should be done when the tribunal is called upon by both of the parties or when called upon by either of them, or when, in its own judgment it sees fit to intervene. The tribunal should have the right to set itself in motion, and rapidly, too.

The Commission has decided upon certain recommendations and suggestions running upon three lines; first for Congressional action, second for State action, and third for the action of corporations and labor organizations.

(1) There should be a permanent strike commission of three members with duties and powers of investigation and recommendation similar to those vested in the Interstate Commerce Commission as to rates, etc. Power should be given to the United States courts to compel railroads to obey the decisions of the Commission after summary hearing and no delays in obeying the decisions should be allowed pending appeals. The parties to the controversy, being the railroads on one side and trade unions incorporated under the United States statutes or under State statutes on the other, should have the right to select representatives, to be appointed by the President, to serve as temporary members of the Commission in hearing, adjusting and determining that particular controversy. This provision would make it for the interest of labor organizations to incorporate and to make the Commission a practical board of conciliation. During the pendency of proceedings before the Commission it should not be lawful for the railroads to discharge employees belonging to the unions that have originated the proceedings, except for inefficiency, violation of law or neglect of duty. Nor shall it be lawful for the unions, during such pendency, to order or aid strikes or boycotts; nor for a period of six months after decision for the railroads to discharge any employees in whose places others shall be employed, except for the cause aforesaid; nor for any such employees during a like period to quit the

service without giving 30 days' written notice. The United States statutes of 1885 and 1886 should be amended to require National trade unions to provide in their articles of incorporation and constitutions, etc., that a member shall lose membership and forfeit all rights as such if he participates in or instigates force or violence during strikes or boycotts, or seeks to prevent others from working through violence or intimidation. Finally, the Commission does not feel warranted in recommending a license system for higher employees, but commends this to the consideration of Congress.

(2) The Commission suggests the consideration by the States of a system of conciliation and arbitration, like, for instance, that in Massachusetts, to be re-enforced by giving the board of arbitration more power to investigate strikes whether requested to do so or not, and the question might be considered of giving labor organizations a standing before the law. Contracts requiring men to agree not to join labor organizations or to agree to leave them as conditions of employment, should be made illegal.

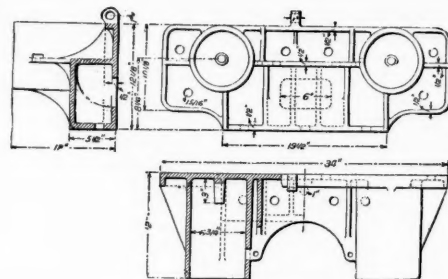
(3) The Commission urges employers to recognize labor organizations and to deal with them through representatives. The Commission is satisfied that if employers everywhere will endeavor to act in concert with labor, that if when wages can be raised they be raised voluntarily, and that if when there are reductions reasons be given for the reduction, much friction can be avoided.

The Gould Freight Car Buffer.

In the extended use of the M. C. B. freight coupler and of heavy cars of 60,000 lbs. capacity, it has been necessary to devise a stronger draft rigging. The M. C. B. coupler made of good malleable iron, is now stronger than the ordinary draft rigging, and in consequence repairs to draft rigging are a more serious item in the maintenance account. Stronger draft riggings are now being devised, notably a steel or malleable iron draft beam. It is important to have a breaking point at those

of the Gould freight buffer. It is designed to take the place of the ordinary buffer-block. The box at the base acts as a stop for the horn of the coupler when an excessive blow is received. The pocket extensions at the sides hold the ends of the draft beams and receive all the bolts of the carrier strap. The base or housing is bolted direct to the end sill of the car, without cutting. The buffer has two light springs to receive the first shock and admit of easy coupling, and two heavy springs to receive heavy shocks.

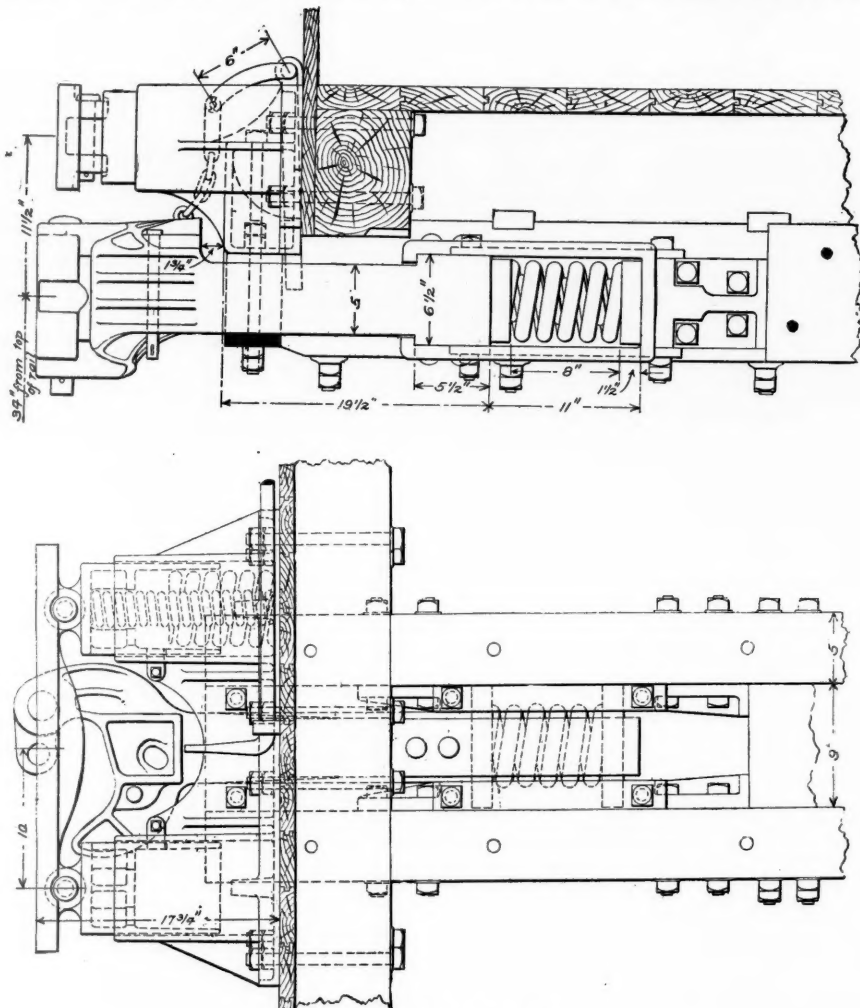
In the uncoupled position the buffer extends 1½ in.



The Gould Freight Car Buffer.

forward of its coupled position. When in the coupled position, this allows the buffer to follow the coupler draft spring, and prevents the buffers parting when the couplers are in tension. The large springs are the ordinary outer coil freight draft springs, to admit easy replacement by the railroads. As they do the heavy work they are more liable to replacement.

The buffer is of simple design and is contained within itself, making it easy to apply, and cars having such buffers can be run in connection with passenger equipment. It can be applied to freight cars now in service



The Gould Freight Car Buffer.

points most accessible and easily repaired. Formerly it was often the knuckle of the coupler, but with a better material in the knuckles, the breakage has been transferred to the draft rigging. If steel draw beams are used the breakage will be transferred to the center sills of the car.

It is advisable to protect both the center sills and draft rigging as well as the coupler, and the Gould freight buffer has been designed to protect those parts subjected to the heavy strains due to buffing, which is the main cause of the excessive breakage of the couplers back of the head and of the follower-stops and draft-timbers. For refrigerator cars and the transportation of articles easily damaged by excessive shocks and for stock cars the buffer will be advantageous. The loss of weight and the liability to breaking of the legs of stock will doubtless be lessened by the use of a cushioned buffer.

The engravings show the construction and arrangement

without changing any timbers, as it is simply bolted on where the present dead blocks are taken off.

Hours of Work of Railroad Men.

The first annual report of the British Board of Trade under the act of 1893, with regard to the hours of labor of "railway servants," has lately been issued. The law empowers the Board to require very full information from railroad companies on this subject, and, when it appears that an employee is overworked, to order the road to revise its schedule, reducing the number of hours prescribed sufficiently to bring within a reasonable limit the number of hours which the men will actually work. If such a schedule is not satisfactory, or if the relief which the Board of Trade deems just is for any cause not granted, the Board is to report the matter to the Railway Commission, which in due time may impose a fine for

non-compliance with its order. The present document represents the work of 12 months, ending July 27, and it is stated that the Board has dealt with 72 cases; 24 affecting the hours of signalmen, 14 drivers and firemen, 14 station employees, 7 conductors and brakemen, 6 shunters, 4 gate keepers, one train signal clerk, one plate layer and one wagon examiner. The Board treats all complaints as confidential, but as a rule they are made for a whole class or classes of employees and not on behalf of individuals. It is impossible, therefore, to compute the number of employees whose cases have been dealt with, but it is believed to be very considerable.

Complainants have been moderate and reasonable in their terms. In general the Board testifies to the willingness shown by the companies to coöperate with the Board and help it in arrangements for reducing hours of labor which may be found to be unreasonable; but it is found impossible to lay down any general rules. The circumstances of employment vary greatly, and it is impossible to say with reference to any class that a particular scale of hours is reasonable for all of the members of that class. Sir Courtenay Boyle, the Secretary of the Board, regards with extreme disfavor the policy of fixing a number of hours as a fair days' work, because whatever number of hours were fixed as a maximum would undoubtedly tend to become a minimum and would cause injustice to those men who are working under extreme pressure during the whole of the time for which they are employed.

The Board declines to make any general rules to guide itself or to assist the companies in determining what are fair and reasonable hours, but must deal closely with each case on its merits. One must consider the working of each signal tower in case of complaint by signal men; details of work in the yard in case of a complaint from switchmen, and so on.

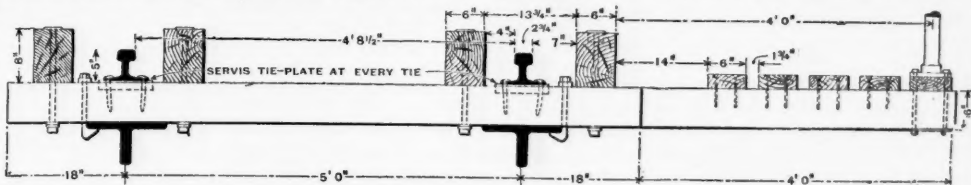
Sir Henry Oakley, General Manager of the Great Northern, in a communication to the Board, writing as Honorary Secretary of the Railway Companies' Association, mentions the large expenditure in the improvement of facilities for handling traffic, the large increase in the staff,

Then the end of the strap would spring out and the flange of a passing wheel get between it and the timber, stripping the strap completely off and making a very dangerous thing to have in a track.

Mr. Waterhouse, the present Chief Engineer of the Manhattan, considers it very desirable to have the present space between the rail and the outer guard rail, at least for their standard track, with rails 5 in. high on Servis tie

for canals and he constructed the great canal lifts of La Louvière and Les Fontinettes.

As Mr. Clark got leisure he became interested and deeply versed in astronomy, and in the declining years of his life he spent much of his time in the cultivation of that science. Like so many other self-made men he developed a fine gift for writing the best English, and published several book and pamphlets. One who knew



Present Standard Track of the Manhattan Railway Company.

plates. The tread of a derailed wheel riding on the flange of the rail would be only 2 in. below the top of the guard rail. Moreover, the space now adopted, makes it comparatively easy to get rid of snow and ice.

The Late Mr. Edwin Clark.

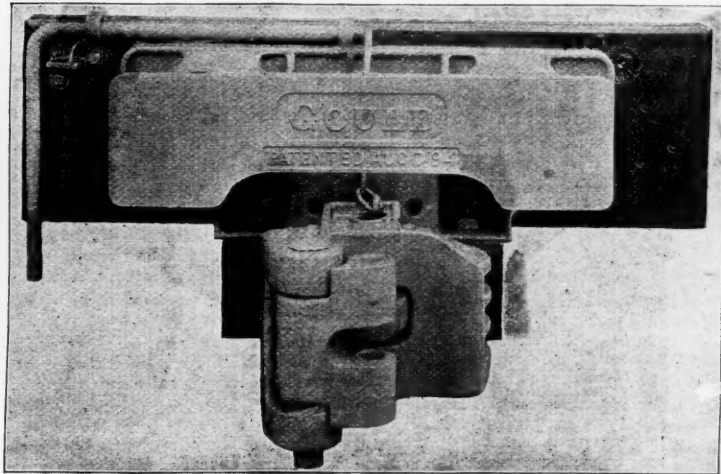
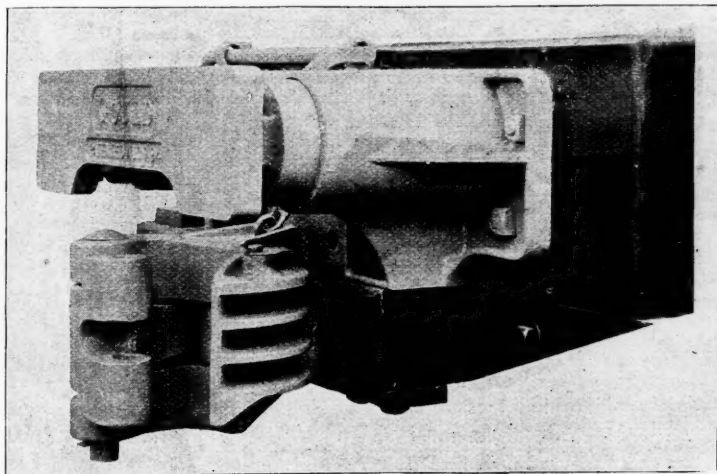
Engineering of Oct. 26 contains an appreciative article on Mr. Edwin Clark, who died Oct. 22, at his home in Great Marlow, England, at the age of 80. Mr. Clark was one of the generation of great engineers whose work began with the beginning of railroads, and who, starting with no special training and with but very limited education, not only made themselves famous but changed the occupation of an engineer from a trade to a great profession. Mr. Clark began his work under Robert Stephenson in the construction of the Britannia tubular bridge over the Menai Straits, and was afterwards associated with Mr. Stephenson in building the Conway tubular bridge.

It is curious to read of the expedients that were first

The Right of Eminent Domain as Applied to Rapid Transit Roads.

The writer's suggestion in the *Railroad Gazette* of November 2, page 752, has brought out a number of inquiries as to the principles on which that suggestion was based. Some of the questions indicate on the part of the inquirers a deficiency of information as to the principles underlying the doctrine of the right of eminent domain.

Briefly stated, that right is simply that the public by the duly constituted authorities can seize and use for the benefit of the public at large, any real estate necessary for the use of the entire public, on paying to the owner of such the value of the same and a proper compensation for the injury which is done to him by being deprived



The Gould Freight Car Buffer.

and other means adopted to avoid undue pressure or excessive hours. He points out that the conditions of traffic are constantly changing, and on occasions the demand of the shippers, each pressing for the immediate transport of his own consignment, render it impossible to avoid delays and detentions which entail temporarily longer hours of duty on the part of the men engaged in handling the business. He says that the companies are fully alive to the disadvantages dependent upon unduly long hours and have taken all requisite steps to bring the hours within reasonable limits.

The report gives a list of cases dealt with, with the name of the road, nature of complaint and a brief statement of what has been done. Nearly all of the principal roads appear in the list, including the Liverpool Overhead, the newest road. The Midland, which reduced signalmen's hours after the Thirsk collision of Nov. 2, 1892, does not appear in the list.

Guard Rails on the Manhattan Elevated—New York.

Last week we showed some examples of the arrangement of guard rails on a number of elevated railroad structures in New York and Chicago. Since publishing that article we have received a drawing showing the present standard of the Manhattan Co. It will be observed that the outside guard is now 7 in. from the rail. This space has been determined on in order to give room for a derailed wheel and also for the tie hook-bolts which have for some time been standard. This bolt is, it will be remembered, the invention of Colonel Hain, it having been devised for the purpose of getting the nuts all on top where they can be easily got at.

The company has abandoned the use of strap iron on the inner face of the inner guard rail, leaving it off in all renewals. Cases have occurred where the bolts holding these straps to the wood came loose, and worked out sufficiently far to be struck by a wheel and sheared off.

suggested for carrying the railroad over the Straits. A suspension bridge was rejected because the problem of stiffening such a bridge for railroad traffic had not yet been worked out. One suggestion was that arches should be used, but as the bridge was to have great height, namely, 103 ft., throughout the whole span, and a scaffolding could not be erected, it was proposed to build out the arches independently from the piers, anchoring them by tension rods, thus anticipating the cantilever bridge. Another suggestion was that each span should be built separately on scaffolding on a pontoon, at such height that when floated the ends could be dropped to their seats on the piers, an expedient which has been successfully used since in several places, notably the great Hawkesbury bridge and the 525-ft. span of the Ohio Connecting bridge at Pittsburgh. Parliament refused to permit the erection of arches because of the restriction of the open way for vessels and because they would cut off the wind from vessels in situations where it would be very important to them. The result was the adoption of the tubular bridge, and each line of the bridge was built in a single tube 1,511 ft. long, weighing 5,270 tons. The two center spans are 460 ft. in the clear and 470 ft. from center to center. They were constructed on the beach 1,500 ft. from the site, floated into place and lifted 100 ft. by hydraulic machinery. The clear span of the Conway bridge is 400 ft., the tube having been built first 412 ft. long and afterwards lengthened to 424.

Mr. Clark was thus associated five years with Stephenson after which he became Engineer in Chief to the Electric Telegraph Co., in which service he did much to develop the use of the telegraph on the North Western Railway and devised the block system of signalling. He also had much experience in connection with this company laying submarine cables. Later he took up the building of graving docks and finally established the firm of Clark & Stansfield. In this work Mr. Clark devised the plan of floating a vessel over a gridiron, then raising the vessel by two rows of hydraulic presses. This work naturally developed the idea of hydraulic lifts

of it. In applying this doctrine to the case which we are discussing, there must be taken into consideration certain principles which the writer has never seen formulated in any legal opinion, and which his correspondents have evidently not found in print. These principles may be thus stated:

A block of space, wherever situated and however bounded, is real property, and may be condemned for public use under the right of eminent domain.

In such condemnation proceedings, the damage caused to adjacent property, wherever located with reference to the property seized, must be considered, and the amount of compensation must be based on the actual measurable detriment under current conditions to the revenue obtainable from the entire space owned by the defendant in consequence of his forcible deprivation of the condemned block of space.

The commercial unit of real property is an inverted pyramid with its apex at the center of the earth and its base at the outer limit of the attraction of gravitation to the earth, and with its horizontal dimensions at the surface of the earth, the unit of measurement in the country where it is situated. There is only a small proportion of this pyramid which is actually available for use, and which is therefore looked upon as having a purchasable value under ordinary circumstances, but the title to the entire pyramid is unquestionably vested in the holder of the horizontal section of it at the surface of the earth, and any encroachment upon the entire solid at any point from the center of the earth "usque ad coelum" is resented by him.

The standard of reference for the relative values of different segments of this pyramid, which are included between horizontal planes at different distances from the surface, either above or below the same, is the value of the first segment above the surface, and this value varies with the use to which it is applied; where the surface is to be devoted to agricultural purposes, the superjacent space is as valuable as the surface, and so also is the subjacent space to such depth as is needed for

the roots of plants and the drainage of the soil. The subtraction of any portion of the pyramid above the surface of the earth is equivalent to entire destruction of the value of the entire pyramid. This is alike true for a potato patch, a sugar plantation, a peach orchard or a park. To such, free and unobstructed access to the sunlight, the winds and the rains are essential.

Where the surface is barren, but the underlying sections are productive of profit, as a quarry or a mine, the superadjacent space beyond the limit of the structures needed for developing the underground profits, has little value. Air and sunlight are not needed, and the injury from adverse possession of the upper segments would be slight, while the subtraction of any segment below the surface would be of material injury.

Where the space near the surface is needed for purposes of residence or trade still another condition exists. The segments of space both above and below the surface for a limited distance have distinct values, which are to a great degree dependent upon their facility of access from the surface. In considering the question of adverse possession of any of these segments, there has to be taken into account the effect which the proposed occupancy would have on the structures both above and below that segment, in addition to the effect on the structures bounding it laterally, which has to be considered in any case of ordinary occupancy of property. It does not seem as if there could be any more difficulty in determining the measure of damage to the property above and below a well defined block of space than that to the property on each side of it.

J. J. R. CROES.

Improvements in Riehle Testing Machines.

The diagram which is printed herewith is a record of tests of wrought iron and cast iron made on the vertical, screw testing machine containing the latest improvements of Riehle Bros., of Philadelphia. The specimens were taken from ordinary stock and Messrs. Riehle Bros.

ing mechanism. A simple arrangement (patented) of two disks at right angles to each other gives the operator the power to control both the speed and direction of the weighing poise, as may be most suitable to the material in hand.

These improvements in the Riehle machines are quite recent, some of the patents having been but just allowed. A feature of value in the machine is that it is either automatic or not, at will of the operator, by simply disconnecting the poise belt.

A Foreign Dynamometer Car.

In the *Railroad Gazette* of July 20, 1894, there was given a description of a dynamometer car built by the Paris, Lyons & Mediterranean Railroad, together with drawings showing the construction of the car, and a number of typical diagrams taken under various conditions of service. The mechanism of this car was such as to record automatically the speed, pull on drawbar, velocity and direction of wind, and also by means of electrical apparatus controlled by the attendants, the points at which indicator cards were taken, and the location of mile posts, stops or other similar data.

The *Engineer* of October 5, contained an interesting description of a somewhat similar car, built by the Western Railroad of France and shown at the Paris Exhibition of 1889. Since that time two other cars have been built from the same designs; one for the Russian South-Western Railroad, and the other for the Hungarian State Railroads.

This car, unlike the one described by us, is carried on two axles instead of three. The recording apparatus is placed on a table at the center of the car and motion transmitted from the forward axle of the car through a horizontal shaft driven by a worm gear, and driving through bevel gears a vertical shaft extending up through the floor of the car to the table. A set of bevel gears is so mounted with driving clutches, on the end of this

which rests a disc mounted on a screw lying parallel to the face of the revolving plate and driven at a speed proportional to that of the car. The plate upon which the disc rests is driven at a constant speed and is opposed by a similar plate revolving freely and serving to keep the disc and plate always in contact. When the train is at a standstill the disc will rest at the center of the revolving plate, but as the train is put in motion the screw draws the disc away from the center of the plate until a point is reached where the disc will revolve at the same rate as the screw. A rod connected with the disc carries a pencil which records the distance of the disc from the center of the plate. Other parts of the apparatus on the table record the revolutions of the wheels, the time, and the distance run and location.

An interesting feature of the car is the apparatus provided for the analysis of the locomotive gases. The analysis consists in measuring the percentage of carbonic acid, carbonic oxide, and oxygen. The residue is supposed to consist solely of nitrogen. A copper tube is suspended from the top of the smoke stack and connected by an India rubber tube to a flask in the car into which the gas is drawn by means of an aspirator. The gas is passed into a graduated tube and then into test tubes containing absorbents. The first tube contains a solution of caustic potash, which absorbs the carbonic acid, the second contains a solution of potassium pyrogallate, which absorb the oxygen, while the third tube contains a solution of cuprous chloride, which absorbs the carbonic oxide. After each absorption the gas remaining is measured in the graduated tube and the volume absorbed thus ascertained.

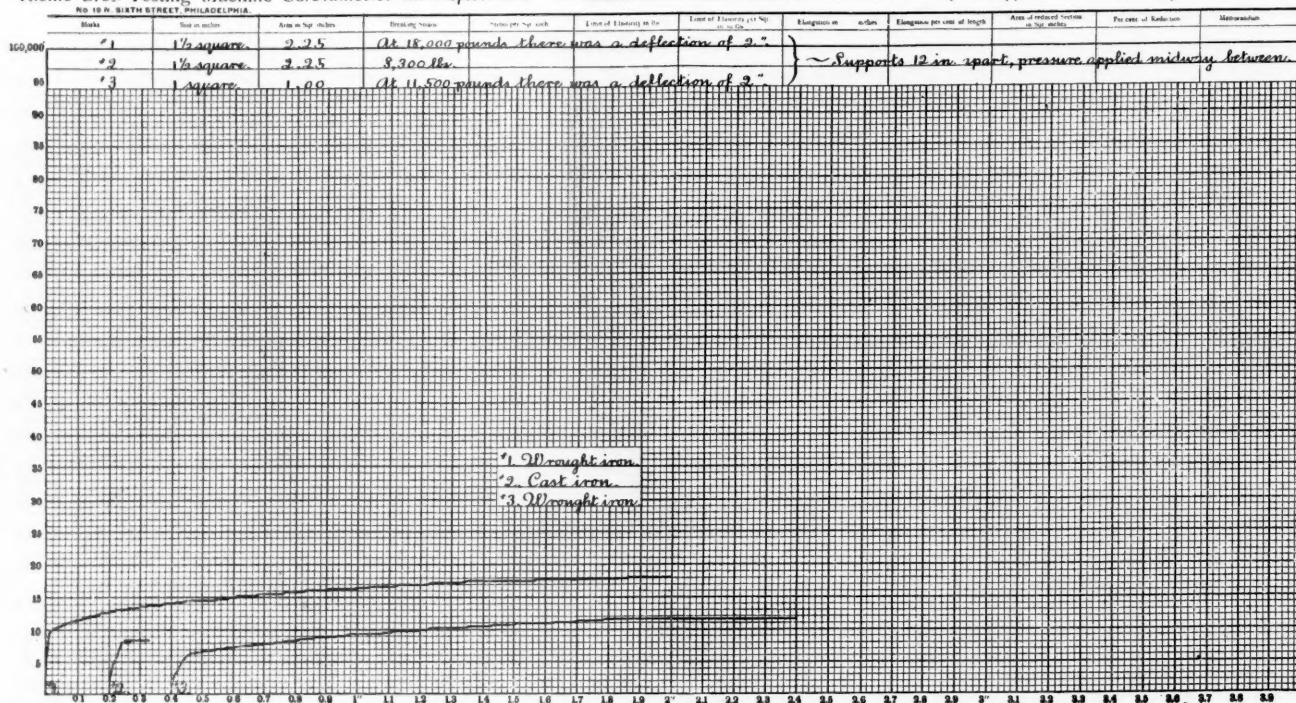
This dynamometer car has recently been used in the tests of the Heilmann locomotive.

The Economical Load for Locomotives.

BY MR. CHARLES PAINE.

There have been a good many valuable discussions of this subject of late, which have been reported quite fully

Riehle Bros. Testing Machine Co. Transverse test of specimens for Riehle Bros. Test. Mach. Co. Laboratory No. 12679-81. Philadelphia, Sept. 11, 1894.



Diagrams of Tests on the Improved Riehle Machine.

send us another diagram showing tests of Munz metal made with the same machine, which, however, we do not reproduce. The lines of the diagrams are as they were recorded by the machine and have not been touched up. The slight irregularities are due to the automatic action of the rise and fall of the beam in combination with the stretch of the specimen. The actual stretch is magnified five times so that each division of one-tenth inch shows an elongation of two one-hundredths actual. The vertical divisions represent 1,000 lbs to each one-tenth inch.

The machine having been adjusted to suit the specimen in question, a strain card is placed on the drum cylinder at the head of the beam, and the telescopic extensometer attached to the specimen by means of the adjusting screw, but so it will follow the elongation by its telescopic slides.

A fine piano wire is then used to revolve the drum and is carried across over suitable guide pulleys to the extensometer, the points of which are, say, 8 inches apart. In order to multiply the actual elongation, a series of small guide pulleys is mounted on pins, corresponding in distance with the points of the extensometer screws, so that the wire can be drove over the pulleys as many times as it is desirable to increase the stretch.

With everything adjusted at zero, the machine is started and, as the load is applied and the beam rises, an electric current is made, which, by means of a magnet and friction clutch causes a grooved wheel to communicate its motion to the hand wheel controlling the weigh-

vertical shaft or spindle, that the recording apparatus will always be driven in the same direction no matter which way the car moves.

The dynamometer springs are long and flat and arranged in two groups as in the car of the Paris, Lyons & Mediterranean Railroad. The ends of these separate springs are linked together and fastened rigidly to the frame. A yoke midway between the ends of the springs is connected with the drawbar by means of a heavy intermediate rod mounted on friction rollers. The yoke itself is mounted on a small carriage rolling on three small wheels which rest on a smooth iron plate fixed in a horizontal plane. Upon the same carrier are mounted four standards of light steel tubing, which form the pencil carrier. The pencil thus records the full motion of the dynamometer spring, which has a travel of 5/8 in. per ton, with a capacity of 7 1/2 tons. A fixed pencil traces continuously a base line which corresponds to the zero position of the moving pencil.

An important feature of this car is a contrivance by means of which the total work is automatically measured. The device can not well be described without the aid of an illustration. The measured work, however, is recorded upon the strip of paper and also shown on a small dial, thus doing away with a large part of the work usually connected with dynamometer tests and making it possible at any time to determine the amount of work done.

The speed is measured by means of an apparatus consisting of a revolving horizontal plate on the face of

in these columns; and it seems worth while now to discuss those discussions and to express some further views upon the question, in view of all the light which has been thrown upon it from various sources.

The most important of these fountains of illumination is the united experience of those who are engaged in doing the daily work of getting the loaded cars over their several roads, and no theories can give them any information of much value in comparison with the actual determination of the practical results, which they have it in their power to obtain by giving to each train, or to a certain number of carefully observed trains, the character of experiments, until they shall have deduced certain general rules for each class of locomotive on each division of the road.

There are a number of delusions, however, which were once generally entertained, which have now been dissipated, against which those who are experimenting may be warned, so that they will not be deterred from the attainment of the best results, and which are sometimes even now put forward by persons not quite well informed.

It is obvious that the economical load for a locomotive is the greatest one possible for it to take over the division; for all expenses whatever must finally be divided by the number of tons carried. But formerly the mechanical department everywhere was wholly opposed to this proposition; "You are pulling the life out of the engines," was the constant declaration of that department to the superintendents, until after several years of obstinate trial it was proved that even the expenses for repairs

per mile were not increased by the increased loading, while the cost per ton hauled was being very largely reduced. And of course the labors of the engine crew are very much increased by having to work the locomotive "for all she is worth;" she will not take a full train along of her own accord by any means, so that the general opinion of the assembly at the turntable is almost always against the "straining of the locomotives;" yet this has frequently been changed by a slight premium offered for any extra cars taken over the grade or division, the opinion always favoring the premium.

Another cause of error is the mistaken idea that the draft upon the engine varies in direct proportion to the number of tons handled; an error which is perpetuated and even promulgated by the writers on friction who, ever since the days of Morin, have persisted in tabulating their experiments and their results as by the ton, although they all go to prove that the friction in pounds per ton is just about inversely as the load in the car; that is that it makes very little difference on the level, after the car is started, whether it has a part of a load or a whole load. Mr. Tower states it as the apparent result from his experiments, that the absolute loss by friction was entirely independent of load. Those persons, therefore, who propose to load their engines according to the loads in the cars will be taking unnecessary trouble, unless their grades are very steep indeed.

It is confirmatory of this conclusion that at the time when the railroads increased the loads in their cars from 10 tons to 15 tons, the number of cars hauled by the engines was generally increased somewhat, owing to the care then being taken to make each engine haul its maximum load.

An old-fashioned rule, deduced by experience with all sorts of cars, all sorts of loads and all sorts of weather, reckoned three empty cars as an equivalent load to two loaded cars, where the ruling grades were 32 ft. per mile. One might figure all day upon a closer comparison, to have it vitiated by a wind or by any kind of a storm; or, above all, by imperfect lubrication; that the cars be well and frequently oiled being indispensable when full loads are hauled.

Another delusion which must be guarded against is that the train may not safely exceed a limited number of cars, because —; almost every objector will fill the blank with his special reason; the power of the engine to handle the train in a proper manner is the only limitation at present to be heeded.

So that after all, a man must load his engine as a certain distinguished artist painted his pictures, "With brains, sir!"

The Climax Oil Injector.

The use of kerosene or refined coal oil for preventing the formation of scale in boilers or loosening scale already formed



has become quite common and in many cases has given satisfaction. Various arrangements for feeding oil have been devised, some of which have been shown in previous issues of the *Railroad Gazette*. One of the latest of these devices is the Climax, shown in the accompanying illustration, and made by the Climax Injector Co., Springfield, O. This injector is made in different sizes, and ranges in capacity from one quart to one gallon. It is intended for use either on locomotive or stationary boilers, is fitted with sight feed, is positive in action and can be graduated to feed within wide limits. It is recommended by the makers of this injector that the kerosene be made to enter the boiler with the feed water in

order to insure a more thorough mixture, and they therefore advise that the device be attached to the feed pipe between the injector and the boiler check, though it may be attached to the suction pipe if it is desired to give the injector the benefit of the kerosene. The injector is now in use on 18 different railroads. It has been patented by Mr. J. V. Motter, of Springfield, O.

TECHNICAL.

Manufacturing and Business.

Another large electric company has entered the field in America; the English firm, Ellwell-Parker Co., has organized the Ellwell-Parker Electric Co. of America, and having interested the Brown Hoisting & Conveying Co. and other financial men of Cleveland, will begin at once the manufacture of heavy electrical machinery in well equipped shops. The American company will make a

specialty of low period direct-connected and bolted alternating current dynamos; also the equipment of elevated roads by their electric system, such as is in operation in Liverpool and which has been described in *Railroad Gazette*. They will also make a specialty of direct current generators. Mr. J. Holt Gates, 1140 Monadnock Block, Chicago, will represent the company in the West.

Iron and Steel.

The South Mills, of the Lackawanna Iron & Steel Co., at Scranton, Pa., this week, resumed work in every department. The coal mines of the company will also go on better time and with the old and new rolling mills, converting works and furnaces of the North Mills, now running, fully 5,000 men will have steady employment for an indefinite period.

The City Council of Bessemer, Ala., has closed a contract with the Bessemer Land & Improvement Co., by which the city buys the water works from the company for \$125,000, and the company agrees to expend that amount and \$200,000 more in the erection of a steel plant. The company's officers say that work on the steel plant will begin at once.

The American Structural Steel Co., of Pittsburgh is preparing plans for a Bessemer steel plant, costing \$900,000 and employing over 1,000 men, on the Niagara River Heights, near the Buffalo city line. This company was incorporated in 1894 by H. Sellers McKee, glass manufacturer; Murray A. Verner, James W. Scully, Mark M. Watson, and E. N. Butz, the builder of the great Masonic Temple in Chicago. The company's object is the manufacture of roll structural steel shapes for modern buildings, bridges and other structures. The company has a patented process. The company will secure its power from Niagara Falls.

New Stations & Shops.

The erection of the new shops of the Louisville, New Albany & Chicago at Lafayette, Ind., is now going ahead rapidly. These shops have been previously briefly described. The round-house will probably be the first building to be finished and with it a turntable 70 ft. in diameter. The office building is also well advanced and is about ready for the roof.

The long talked of proposition of the Cleveland, Cincinnati, Chicago & St. Louis to build new shops at Indianapolis now stands a fair chance, it is understood, of being carried out early next spring. The plans of the shops were made over a year ago.

The enlargement of the shops of the Southern Railway at Atlanta, Ga., is now well under way and much of the new machinery has been delivered at Atlanta. These shops are those of the East Tennessee, Virginia & Georgia on the western side of the city. The machinery in the old shops of the Richmond & Danville in another part of the city will be transferred to the new shops and besides this considerable new tools have been purchased.

The Edge Moor Bridge Works, of Wilmington, Del., have been awarded the contract for the new shops of the Atlantic & Danville Railroad at Lawrenceville, Va. The cost of re-erecting the shops, which are now at Portsmouth, will be about \$30,000. The American Bridge Co., of Roanoke, Va., and John Pettijohn, who is building the new Union station at Portsmouth, were other bidders for the work.

The Canadian Pacific car shops at Winnipeg, Manitoba, are to be enlarged by an addition 45 ft. x 145 ft.

It is announced that the shops of the Michigan Division of the Cleveland, Cincinnati, Chicago & St. Louis are to be located at Wabash, Ind. The city gives the road the necessary ground and the sum of \$50,000.

Car Lighting.

Another plan for lighting cars by electricity, taking power from the axle, is now offered for the attention of railroad men. It is the device of Mr. William Biddle, of the Biddle Railway Car Electric Lighting Co., 108 Fulton street, New York. The apparatus consists of a dynamo carried on the axle and truck, geared direct to the axle. A spur gear secured to the axle meshes into a pinion on the armature shaft and it is claimed that ample provision is made to suit any speed from 5 miles to 90 miles an hour. The regulation of the dynamo for variable speed is by the use of compound winding and it is said that the pull on the armature shaft is kept nearly equal for all speeds and the horse power kept constant. A switch-board is provided, and a battery of accumulators is cut in and out automatically. The dynamo is self-oiling and provided with carbon brushes and is made water and dust proof. It is proposed to put accumulator cells of a capacity for four hours' lighting, at full load, in suitable boxes underneath the body of the car.

Interlocking.

The Johnson Railroad Signal Company has been awarded contracts for interlocking five grade crossings in Illinois on the Chicago, Paducah & Memphis at the following places: Mt. Vernon, St. Elmo, Salem and Kinmundy. There will be four interlocking machines required, one of 24 levers at Mt. Vernon, one of 16 levers, and two of 12 levers. These will be of the Johnson improved pattern, with interchangeable parts. The Signal Company will also build the towers. The Johnson Company has just completed contracts for signaling at three draw bridges on the New Orleans & North Eastern Railroad, one at Pearl River, and two at Lake Pontchartrain Trestle, near New Orleans.

Street Car Heating.

The Gold Car Heating Co. is equipping 200 cable cars for the Third Avenue Line, New York, with its system

of storage heating. The solution carried in pipes under the seats, in the usual manner, is heated by a small stove under each car. The advantage of the arrangement is that it gives a uniform heat, and that the car is not left without heat if the fire in the stove goes out.

Car Door Fixtures.

The Committee appointed by the Central Railway Club to make a report on car door fixtures at the next meeting, in January, 1895, will be glad to receive from railroad men or others, any information or suggestions in reference to this subject; which may be addressed to John D. McIlwain, care The Union Car Co., Depew, N. Y.

Tests of the Tower Coupler.

In our issue of Nov. 9, page 772, we published some records of tests of the Tower coupler which were furnished to us by Mr. Willard A. Smith. In the table of results of knuckle tests, an important figure in the next to the last line, escaped either in the preparation of copy, or in proof-reading, or in some other of the various ways in which types conspire to harass editors; that is, in that particular test the Tower coupler stood 6 blows at 15 ft.; but as the table appears it seems in that test not to have been subjected to any blow at 15 ft. The corrected table is printed below:

Blows at	5 ft.	10 ft.	15 ft.	Material.
Chicago Coupler.....	3	3	5	All steel.
California.....	3	3	4	All steel.
Williams.....	3	4	6	All steel.
Gould.....	3	2	6	Malleable bar, steel knuckle.
Tower.....	3	3	6	Malleable bar, steel knuckle.
".....	0	3	6	Malleable bar, steel knuckle.

Locomotives Without Ball Bearings.

Some of the newspapers have circulated the statement that the Pennsylvania Railroad Co. is building at Altoona a locomotive with ball bearings for the driving journals. We are authorized to say that this story is a "fake," as of course those of our readers who have seen the story have doubtless concluded before now.

The Cornell Automatic Block System.

An audible electric block signal apparatus, named as above, was tested this week on the Philadelphia, New-town & New York Railroad, near Fox Chase, P. A. Philadelphia paper says that 8 miles of the road have been equipped with the apparatus.

The Launch of the St. Louis.

The new American liner, St. Louis, was launched at Cramp's shipyard last Monday in the presence of the President, members of the cabinet, distinguished officers and citizens, and from 40,000 to 50,000 of the "plain people." The principal dimensions of the St. Louis are as below:

Length over all.....	554 feet
Length between perpendiculars.....	535 feet
Breadth, extreme.....	63 feet
Depth moulded.....	42 feet
Number of decks.....	5
Number of W. T. compartments.....	17
Distance of collision bulkhead abaft of stem.....	33 feet
Displacement at 26 feet draught.....	16,000 tons

She is to have quadruple-expansion, vertical engines and twin screws, worked at 200 lbs. of steam, supplied by 6 double-end and 4 single end boilers, and it is expected that the machinery will develop from 18,000 to 20,000 indicated horse-power. The builders do not suppose that she will be as fast as the *Lucania* and *Campania*, but probably a little faster than the *New York* and the *Paris*. Besides the main engines the vessel will have 49 auxiliary engines, and of course will be fitted with all of the modern apparatus for convenience and comfort. Her maximum coal capacity will be for 66 days' continuous steaming at from 10 to 12 knots an hour. She will have accommodations for 320 first-class passengers, 200 second-class and about 800 steerage.

THE SCRAP HEAP.

Notes.

The order recently issued on the Northern Pacific concerning the participation of employees in political affairs seems to have been garbled by those who published it. A copy is now published in which it is stated that employees running for office will be granted leave of absence if practicable; but if a man is elected to an office his resignation will be expected.

The season ticket rates for employees of the Pennsylvania Railroad between Pittsburg and suburban villages have been restored to the basis in effect previous to Oct. 1. On that date an arbitrary rate of \$3 a month was adopted for employees to and from all points within 35 miles of Pittsburg, but those who traveled short distances and whose fare was increased entered a loud complaint. Those whose fares were raised now get them restored, while the new rates, where they were less than the old ones, are left in force.

The roundhouse and shop of the Baltimore & Ohio Southwestern at Bellaire, O., was destroyed by fire on Nov. 2, the loss being about \$10,000.

The auditors of ten roads yesterday came in on Ticket Agent Donough at the Union Station unexpectedly to inspect the office. As usual everything was found to be correct.—*Indianapolis Journal*.

If that isn't a conspiracy of capital to abuse down-trodden "labor" we should like to know what is! One auditor is bad enough; when ten appear at once it must be that they are bent on the complete extinction of the poor agent.

Railroad Taxes in New Jersey.

The New Jersey State Board of Assessors has completed the assessment of railroad property for the current year. The total value of property assessment is \$222,059,373, an increase of \$3,653,308 over 1893. The taxes amount to \$1,518,631.



ESTABLISHED IN APRIL 1856.
Published Every Friday.
At 32 Park Place, New York.

EDITORIAL ANNOUNCEMENTS.

Contributions.—Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies in their management, particulars as to the business of the letting, progress and completion of contract for new works or important improvements of old ones, experiments in the construction of roads and machinery and railroads, and suggestions as to its improvement. Discussions of subjects pertaining to ALL DEPARTMENTS of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections, appointments, and especially annual reports, some notice of all of which will be published.

Advertisements.—We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay, EXCEPT IN THE ADVERTISING COLUMNS. We give in our editorial columns OUR OWN opinions, and those only, and in our news columns present only such matter as we consider interesting, and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers, can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially, either for money or in consideration of advertising patronage.

The report of the United States Strike Commission on the Pullman strike is not merely a disappointment; it is a somewhat dangerous document. The country had a right to hope that the Commissioners would make a report which would have weight both with employers and with the employed, to the advantage of both, and to the good of the whole country; but whatever influence for good this report might have had is nullified by its obvious bias and its one-sided reasoning. We not only admit that labor unions must be recognized as existing and as having a right to exist, but we are pretty sure that they are a necessary part of that phase of social evolution in which we now are. This we have often said, in various ways, and few employers of intelligence deny it. But the liberty of the individual is the very foundation of our whole civilization; it is precisely what government exists for; and the trades unions are to-day the most terrible engine of oppression to be found in the United States of America. This fact the Commissioners do not touch upon at all, or if they do, they touch it so lightly that their words leave no impression on the mind. On the other hand the General Managers' Association, which at the time of the strike prevented the collapse of a great part of the railroad system of the country, and which for the last three or four years has been the means of making it possible to carry on those industries which depend upon the steady working of all railroads centering at Chicago, is treated as a dangerous, extra-legal organization with no right to exist; in fact, a menace to society. Further, if there is any lesson that the workmen of the United States need to learn it is that of their reciprocal obligations toward employers; it is that no prosperity for them or anybody else can be built up and endure unless it rests upon honor and sobriety in conduct. Of all this there is not a word in the report; and, finally, it closes with an illogical scheme of compulsory arbitration which breaks down under scrutiny. Of course, the report will be a comfort to vast numbers of shallow people who think that they are full of sympathy for the human race, and of designing men who like to keep working men in a ferment for their own purposes; and doubtless it will do some harm in encouraging those classes. Possibly it may do a little good in leading employers to think on the workmen's side, and in leading workmen to think on the employers' side; but we should suppose that the good will be far less than the evil.

It seems trite to say that the development of the railroad system of England has been seriously hampered by the severe requirements of the Board of Trade. This has been said so many times and in so many ways that our readers must be thoroughly familiar with the proposition, and the arguments that sustain it, and its bearing upon the trade and industry of the Kingdom. Within two or three years the agitation for relaxation of these requirements has been carried on with new vigor, and in new quarters, and enforced by conditions which if not new are felt more severely than ever before. The farmers especially feel the need of means of communication that shall lessen the cost of getting their product to market. But the great towns also say that they

need more and cheaper means of concentrating and dispersing their populations, and many people in the mining and manufacturing districts think they might be better served if railroad companies were allowed to build light and comparatively inexpensive roads adapted to low speeds and light traffic. During something like 50 years of agitation of this subject, the Board of Trade has held its face like adamant against any innovations that might possibly make the British railroads less safe; and indeed from year to year the requirements have grown harder; and with ample power to discriminate the Board has refused to discriminate between a railroad running three mixed trains a day and a railroad like the North Western, the Great Northern or the South Western, whose rails are hot with traffic. Now the Board has actually issued a circular letter to chambers of commerce and of agriculture, to the Railway Companies' Association, to the Institution of Civil Engineers, the London County Council and various municipal corporations and bodies, inviting them to send representatives to a conference, the object of which will be to discuss how far the requirements of the Board may be relaxed, and whether additional legal facilities for obtaining powers to construct tramroads and light railroads are necessary or desirable. There are some irreverent Englishmen who say that such a conference is nonsense; that the Board already knows all that it is necessary to know on these subjects, and has ample powers to act, and that it is merely throwing a sop to the public. We are inclined to think, however, that this is not quite true, and that the Board would really like to get a consensus of intelligent opinion and to get the people who represent, or think they represent public opinion, together where they can be cross examined and where actual ideas and arguments may be sifted out from heaps of inconclusive writing and talking. It is quite possible, too, that the Board has decided that this will be a comfortable way to let itself down. In our country similar methods are sometimes resorted to. If the Board has actually experienced a change of heart it could take great comfort in being able to say to the British public "we were right all the time and are still consistent, but have decided to give you, at your own peril, that which these representative men say you ought to have."

Mr. Olney on the "Rights of Labor."

Attorney-General Olney has issued a somewhat elaborate opinion upon the right of organization on the part of railroad employees—that is, the right of an employee to join a brotherhood, which may be secret and may be an effective instrumentality for starting and carrying on a strike; and on the rightfulness and expediency of opposition to such action by an employer. It is in the form of a letter sent to Judge Dallas at Philadelphia *amicus curie*, that is, as a communication from one who has no interest in the suit at bar, or the parties to it, but who offers advice as to the Court's duty. The main part of the letter appears on another page of this paper. Mr. Olney did not write on official paper and appended no title to his signature; and the question whether it was proper for him to thus intervene as "the friend of the court" will be of pointed interest to his legal brethren; but on the substance of his argument there can hardly be two opinions in unbiased minds.

It is to the effect that the labor organizations have come to stay, and that capital has no excuse for quarreling with them except where they can be charged with definite wrong-doing. This seems self evident, and yet we can sympathize with the managers of the road. They feel that it is a condition and not a theory that confronts them. In theory the brotherhoods stand for all the good offices mentioned in their constitutions; but in fact they are always managed by demagogues; they strike when there is no just cause for striking and their strikes are always accompanied by violence and by great damage to the railroads and the public. Exceptions to this statement are rare. Mr. Arthur's case is the principal one, and he has a precarious hold on his wild team. It would be a great blessing for most of the "organized" railroad employees of this country if they could be protected from the pernicious influence, positive and negative, of their self-appointed leaders. "Self-appointed" we say, advisedly; for the power of the average leader is based largely on the numbers that he claims to represent, and his claims almost always include a large proportion of individual employees whose support has been given only after solicitation and is faltering at best.

But the officers of the Philadelphia & Reading must know that, as Mr. Olney says, killing the brother-

hood will not prevent strikes, and that if it would they are not the men to strike the death blow. Their right to demand of an employee that he give up his brotherhood is based mainly on their right to discharge him without giving any reason at all; and they must know that the exercise of this right, except with the strongest justification in equity, will get them into hot water at any time, as long as the daily newspapers have such a warm affection for "labor" whether the brotherhoods are killed off or not.

When cornered, the railroad officers, in this case as is generally done in similar cases, fell back on the claim that the discharged employee was inefficient or unfaithful. Here again the experienced railroad superintendent must know that he can succeed only when equity is decidedly on his side. We know that in 99 cases out of 100 the labor agitator, or persistent stickler for his so-called rights, deserves discharge for the good of the service, regardless of his influence as an agitator; but, as we have before pointed out, the evidence of his unfitness ought to be a matter of record so clear as to be unquestioned. And when your discipline is brought up to that degree of perfection it will be found that the inefficient workman has already been got rid of. Men can be justly discharged for unfitness at any time, but the evidence that they are unfit and that others retained are fit must be so clear that he who runs may read it. As long as it is principally in the superintendent's mind, a jury will accept, as equally good evidence, a lot of stuff from the brotherhood lawyer's mind.

Logically, the first question to be decided by Judge Dallas is whether such a matter as this should be left entirely to the discretion of the receivers. This point will be pressed in every case of this kind. The claim of the Reading receivers' counsel is that the court cannot undertake to decide details of discipline; that if the judges were thus meddlesome they would be overwhelmed with work. Judge Hanford, in a case at Seattle last June, sustained this view (quoting previous decisions), but he said that a complaint against a receiver as to general policy, and of sufficient gravity to [probably] warrant his dismissal would be heard. This, doubtless, is the only practicable view to take, and it leaves each judge to determine for himself, in each case, whether he will decide the question presented or send the complainants back to the receivers. At Philadelphia we seem to have the anomaly that what ought to have been a detail, to be managed by the division superintendents, has been made a matter of general policy.

Mr. Olney, in one of his paragraphs, enlarges upon the beauties of arbitration, and he justly says that arbitration by a high-minded and impartial judge, such as those who sit in our higher courts, is the best attainable arbitration. But we must not deceive ourselves with the notion that the learned Attorney General is here giving us any light on the perplexing problem as to arbitrating strikes, which is nowadays discussed so much in newspapers and elsewhere. The arbitration by Judge Dallas is compulsory. The desideratum in the industrial world is voluntary arbitration. The questions at issue in a strike generally affect parties on one or both sides whom you cannot get into court, that is, before the arbitrator, unless they come willingly; or, if they come, they have little difficulty in keeping back important facts. Impartial, wise and benevolent-minded judges we have always had; the problem is to convince aggrieved contestants of this fact and to convince them that it is for their interest to demand nothing but justice. That accomplished we shall have no need of arbitration boards.

State Railroad Control in Texas.

Any one who wishes to see a shining example of state railroad regulation should turn his attention to Texas, where the science is being exemplified these days in a way to gladden the hearts of populists of every degree. We do not mean to say that everything that the Texas railroad commissioners do is bad; many of their acts are evidently based on good motives, and they are engaged in a work where even ill-disposed men sometimes do good and where the wisest often make mistakes. But the commissioners are true representatives of the people, and as a body they seem to be decidedly "agin' the railroads;" two conditions which insure the conduct of such an office on lines of pure theory and false theory. Perhaps the second condition is, in Texas, a necessary corollary of the first. At all events, true representatives of the people of Texas cannot be expected to take a very sympathetic interest in the affairs of the railroads or their owners.

These commissioners, as every one will remember, reduced railroad freight rates so low in 1891 that the railroad companies revolted and got the United States

Supreme Court to decide that such reductions must not be too severe; if they were, the courts would check them. Since this decision, the commissioners have taken up their business again and seem to be honestly aiming to keep within the limits indicated by the court. They have made a cotton tariff in which the reductions from the rates established by the railroad companies are moderate as compared with the reductions made three years ago. Even these moderate reductions have nothing to affirmatively justify them, for the railroads of Texas are so poor that a reduction in their rates on a staple article of export like cotton is not warranted unless it will increase the amount shipped, and there is no evidence that the railroads are not on the alert to do this themselves whenever such action may be needed. But however this may be, the cotton crop in Texas this year is so very large that all the roads are overwhelmed with offerings, almost regardless of rates, and the attention of the commissioners is devoted chiefly to the rivalry between Galveston and Houston.

This rivalry involves questions so complicated as to puzzle the most experienced traffic experts, and how it will be settled by the inexperienced commissioners is a conundrum upon which all interested are now exercising their guessing powers (for these are the only powers that seem to be adapted to the case). Before the consolidations and extensions which in Texas as everywhere else have reduced rates on old roads and complicated matters by the competition introduced by the new ones the rail rate on cotton from Houston southeastward to Galveston, 50 miles, was about 10 cents per 100 lbs. Barges on Buffalo Bayou can carry cotton from Houston to Galveston harbor very cheaply and the rail rate was therefore kept within reasonable limits. Wherever the cotton came from, it always had to pay about 10 cents more to Galveston than to Houston. This they called the differential. But with the advent of competing rail lines to Galveston, both owned by companies owning roads northward and westward into the cotton raising districts, there was, of course, a leveling down of freight rates; and there was a strong tendency to reduce the Galveston rate more in proportion than that to Houston, because if the cotton stopped at the latter place (to be compressed) it might go the rest of the way on barges or might be taken eastward to New Orleans by the Southern Pacific, which offered very low rates. But the roads that could reach Houston but not Galveston made a strong fight, of course—powerfully aided by the Houston cotton buyers, who, with the waterway at their command, have succeeded in keeping a good business—and the differential has thus far been maintained, though reduced, we believe, to about 8 cents. The commissioners in their recent tariff reduced it still further to six cents. Galveston now demands that it be abolished altogether, and the representatives of that city have kept up a persistent appeal before the commissioners.

This is peculiarly a case where the state should keep its hands off. The commission cannot move either way without doing injury to one interest or another. Possibly the same or a similar injury may result if the laws of trade and the inevitable strifes of rival merchants and carriers are allowed to work out in their own way, but with all parties keeping within their legal rights the outcome will be a natural one, while if the commission acts it will be artificial, and so open to the charge, in the nature of things never completely refutable, that it is unjust. Moreover, in the enforcement of an arbitrary difference between cities, the state is violating one of the cardinal principles that generally actuate legislatures in regulating railroads, to promote free competition between carriers. Another principle that railroad commissioners generally have a great affection for, has to be in large measure violated if not actually trampled upon, the principle of charging strictly according to distance; for an arbitrary difference between two towns is almost sure to either make the rates per mile too low to one place or too high to the other.

The rivalry of the two cities is not without its humorous incidents, one of which was the presentation of the controversy to the Grand Jury at Galveston. Some of the over-zealous partisans of that city, honestly believing, no doubt, that all freight rates tending to take business away from the chief port of Texas must be inherently vicious, induced a grave and learned judge to charge the Grand Jury on October 15 as follows:

"I want to call your especial attention to the violation of the interstate commerce law. If a violation of law exists, return a true bill against the parties so violating it. If from the evidence you find that the law has been violated by a differential existing against Galveston or Houston, as the case may be, your duty is to find a true bill against the parties, when it is plainly evident that the interstate commerce law has been violated."

It appears that there was no pretense that there had been any infraction of the long and short-hand section, or of any specific provision of the law, except that the railroads taking cotton from Houston directly to New Orleans, or northward, were carrying it at rates too low for Galveston to compete with.

We said that the railroad commissioners of Texas were inexperienced, but possibly a stronger term ought to be used. A correspondent who is familiar with affairs in that state, and who seems to be moderate in his views, says of them:

"As a body the Commission is singularly devoid of practical information; the members readily adopt the views of parties who have their ear, give great attention to every complaint against the roads regardless of sources, and while they give a hearing and patient attention to anything the roads have to say, such hearings are extremely barren of results, as they are usually prefaced merely by an invitation to the railroad men to speak, to say what they have to say, the commissioners at the same time squaring themselves back in their chairs to listen. No question to elicit information is ever asked, no suggestion made and no objections to any of their proposed rulings are ever answered. They simply listen and then go into executive session. Their rulings seem to show that the audiences given to railroad managers are largely for effect and not for the purpose of reaching an equitable decision as between the rights of the railroads and the people. The actions of the commissioners during the past few months indicate that they are endeavoring to justify their existence to the people of the state by reducing rates generally on the roads, feeling their way cautiously and hesitating to reduce sufficiently to provoke wholesale litigation in the Federal courts."

Thus, with a question to decide involving not only the rival interests of the merchants of Galveston and of Houston, but also, inextricably bound up with these, the rights of the country shippers and compressors, of the barge lines, of the great wharf company at Galveston (opposed to the barge lines), and of two antagonistic groups of railroads, we have a tribunal characterized not only by inexperience in railroad management but by considerable inexperience in ordinary business as well; and apparently tinged with a good deal of prejudice also.

Even if what appears to be prejudice is only that natural leaning which in most human affairs seems to be inevitable—the leaning due to the feeling that the burden of proof must be thrown upon one side or the other, and therefore should lie upon the party honestly believed to be farthest from right—it is still in order to remind the Commissioners that so wise, scrupulous, and judicial minded a man as Judge Cooley practically failed in the endeavor to regulate railroad rate-making by either legislative or judicial instrumentalities, or by both combined. Judge Cooley, as chairman of the Interstate Commerce Commission, deliberately concluded that—to use a railroad phrase—he ought always in case of doubt to take the safe course, *for the people who framed the law*—that is, the customers, as distinguished from the owners of the railroads. If in doubt which party might suffer from his decision he must make sure that it should not be the people. Judge Cooley is the soul of honor, and none of his decisions or opinions afforded any trace of evidence to the contrary, but his elaborate discussions of disputed points in rate-making resulted in nothing more nor less than to confirm the view held by the most impartial experts before, that the final adjudication of freight-rate contests between railroads or cities or individual shippers ought to be left as much as possible to natural laws. In the application of artificial restraints we are only building a house of cards which soon goes to pieces by the force of its own weight. A railroad commission composed of wise and experienced men can do much good by making railroad problems clear to the public, but settling the problems is another matter.

The Air-Brake Decisions Again.

The letter from the New York Air-Brake Company which appears on another page, compels us to return to this subject, for it would be unjust to the readers of the *Railroad Gazette* to let that letter go out in our columns without a word or two of explanation.

We are not agile enough to know what device the New York Air-Brake Company considers its standard at any given time. That company always has a triple valve and an engineer's valve which are not only better than the Westinghouse standards but which successfully evade the Westinghouse patents. Its course is strewn with scrap iron, the ruins of valves, each of which has in its day been the best thing in the world mechanically, and impregnable at law. But, somehow, when the test came the contrivance failed to fill either promise. Therefore, we long ago decided that we must let each valve actually prove its mechanical fitness in work and its legal status in court before we could take it seriously. We should suppose that the railroad companies would have come to the same conclusion. Most of them appear to have done so. Would it be unusual

or unreasonable if those which have not should now be made to pay the penalty of their indiscretion?

In writing, week before last, of the results of the decisions of the United States Circuit Court and of the Circuit Court of Appeals, we, for the reasons suggested above, confined our remarks to the valves that were actually before the courts in the suits in which those decisions were rendered. We did not attempt to anticipate the courts with regard to "a valve such as the New York Air-Brake Company has been making since Judge Townsend's decision." We said that the Court of Appeals left "the devices in suit just where the lower court left them;" that is, the New York Company was enjoined from selling them and an accounting was ordered.

But we said further, and that is one of the specific points of complaint in the New York Company's letter, that Judge Shipman (Court of Appeals) reversed the decision of the lower court on patent No. 448,827 because the form covered in that patent "is included in the generic claims of No. 376,837—simply a form of the invention of patent No. 376,837 and covered by it. This is the ground on which he reverses the decision of the lower court, and it seems to strengthen rather than to weaken the Westinghouse position, as it makes patent No. 376,837 so much the broader." The New York Company says 448,827 was *not* declared void because it is fully covered by 376,837. Let us see just what the Judge says:

"The form in 448,827 permits, as do the defendant's valves auxiliary reservoir pressure to be present at all times and to act upon the piston, but counterbalanced during ordinary service stops. It was included in the generic claims of No. 376,837, and in view of those claims no invention could consist in the mere fact of the elimination of the action of the triple valve piston as an element of control. When the patentee obtained the broad claims of No. 376,837, he exhausted his power to obtain additional patents for mere modifications of means by which the piston should be made independent of the triple valve piston, unless the modification contained a patentable improvement upon the form disclosed in that patent. . . There was no patentable invention in this modified form, apart from the invention shown in No. 376,837. It was simply what the patentee first deemed it to be, a form of the invention of that patent and covered by it."

The language is plain; it needs no "torturing" to construe it as we have done. And now we come to the question whether or not these decisions leave the New York Air-Brake Company free to use a valve in which they get the quick action (emergency action) by train pipe pressure independently of the auxiliary reservoir pressure. This is what they claim; this is how they hope to evade the broad and valuable rights of Westinghouse, as established in what Judge Shipman calls a pioneer patent, covering an invention of broad and primary character, viz: No. 376,837.

In the letter before us these claims are twice made as follows: (1) Patent No. 448,827 being declared void "it must follow that a valve such as the New York Company has been making since Judge Townsend's decision, operated by train pipe pressure, is free and clear from the only patent sustained for the Westinghouse Company." (2) "Bear in mind that the Park patent, which operated by train pipe pressure. . . was part of the suit. This was decided by Judge Townsend in favor of the New York Air-Brake Company and sustained."

We have read the letter very carefully, and pondered over it a good deal, in the hope of finding some traces of an intention of being candid with us and with our readers. We cannot find even a trace. On the contrary, the two quotations make a flagrant case of torturing, not only of language but of fact. Let us examine them.

(1) The reversal by Judge Shipman of Judge Townsend's favorable decision in the case of the patent No. 448,827 does not give the New York Air-Brake Company the right to use a valve actuated by train pipe pressure; and this is for two reasons. (a) Judge Shipman denied the Westinghouse claims under this patent because its form and its characteristic features are "included in the generic claims of No. 376,837." But both courts have fully established the Westinghouse claims under this patent. (b) The claims of patent No. 448,827 are not for a valve acting by train pipe pressure alone, but for a device in which the action of the supplemental (emergency) valve is independent of the position of the "slide valve of the triple-valve mechanism."

(2) The "Park" patent (No. 393,784) is the one in which the specific claim is made for the movement of the emergency valve by train-pipe pressure, instead of by auxiliary reservoir pressure. This patent is, as the New York Air-Brake Company says, owned by the Westinghouse Company. In the suit brought by the Westinghouse Company under this patent it was not claimed that, the New York Company's modified quick action valve infringed, for it was worked by auxiliary reservoir pressure. But the infringement by the first form of the defendant's valve, which by the way could not be made to work, was claimed.

Both courts held that the Park patent, not being a primary one, must be construed narrowly, and they denied infringement of the claims in suit on the ground that in those claims an emergency valve is mechanically connected to an emergency piston, while those parts in the New York valve then in suit were not in actual mechanical connection.

So far as the valves in suit are concerned, both were already held to have infringed patent No. 376,837, and the loss of the claim of infringement of the Park patent made no difference so far as concerns the injunction sued for.

The concluding paragraph of the New York Air-Brake Company's letter raises a question which belongs to the courts rather than to a newspaper, that is whether "the New York Air-Brake Company is free to make it [their present form of quick action triple] and the railroads to use it." As to this it would be improper for us to express an opinion yet, for this valve is now the subject of litigation. Whether patent 376,837 is to be limited to a structure which operates the emergency piston by a pressure which comes directly from the auxiliary reservoir; or whether under the decision of the Court of Appeals it may be entitled to a still broader construction; or whether in the present form of the New York Company's valve some connection of emergency piston and emergency valve is to be found which may bring it within the Park patent, or whether or not this New York valve may or may not infringe some other of the numerous patents of Mr. Westinghouse, all these are questions which, even after "a careful reading of the decision of the Court of Appeals," "any fair-minded and intelligent person conversant with air-brakes" may well fail to answer. They are questions, as we understand it, for the courts to determine.

Annual Reports.

Missouri, Kansas & Texas.—The report of this company for the year ending June 30, 1894, is just issued. The general results of operation are given in the table which follows:

	1894.	1893.	Inc. or Dec.
Gross earnings.....	\$9,877,291	\$10,388,191	D 4.9
Operating exp. and taxes.....	7,205,942	7,810,735	D 7.6
Net.....	\$2,671,349	\$2,577,456	I 3.5
Interest and rentals.....	2,680,871	2,359,443	I 13.6
Sundry accounts.....		\$218,013	
Surplus.....		20,034	
Deficit.....	\$9,522	\$238,047	
Average mileage.....	1,960 miles	1,712 miles	
Gross per mile.....	\$5,039	\$6,068	
Net per mile.....	1,363	1,506	
Ratio of expenses.....	73 p. ct.	75 p. ct.	

In connection with the apparent deficit it should be noted that the company expended during the year, \$460,384 for betterments, charging that sum to operating expenses. This was outside of betterments provided for from the sale of treasury assets and included \$133,600 for bridges and \$138,000 for equipment. The earnings from the chief items of revenue were:

	1894.	1893.
Freight.....	\$7,359,213	\$7,876,357
Passenger.....	1,989,448	1,896,987

It will be observed that, as was so often the case in the last fiscal year, the passenger earnings increased while those from freight fell off. The tons carried one mile were 695,609,442, a decrease of 387,639 tons or 13.7 per cent. The average distance hauled was 284.93 miles, being an increase of 19 miles over the preceding year. The revenue per ton per mile was 1.058 cents against 1.046 the year before. The coarsest freights—those taking low rates—fell off proportionately more than those which will stand higher charges. Lumber, for instance, constituted but 10.62 per cent. of the tonnage in the last year, while the year before it was 13.88. Coal constituted 31.27 against 35.14 per cent. the year before; while live stock was 13.85 per cent., a trifle more in percentage than the year before; and manufactures and merchandise, which in the last year made up 10.64 per cent. of the tonnage, also increased relatively. These facts probably explain the slightly increased ton-mile rate which took place, notwithstanding a prolonged rate war in the autumn of 1893 and again in the spring of 1894. The cause of the decline in coal tonnage, which is such an important item on this system, was the shut-down by strike of the mines in the Indian Territory for more than 16 weeks. On the whole, the President considers it safe to assume that the company will never again be confronted with such a combination of adverse circumstances as it has encountered during the past year, and that, considering these circumstances, the result of the year's workings should not be discouraging. Added to the universal depression, which affected all railroads, there were special disturbances, including the strike and rate war mentioned above, the competition from insolvent companies, and the Rock Island's invasion of Texas territory.

The passenger miles were 84,678,466, an increase of 22.4 per cent. over the preceding year; but the passengers carried decreased slightly, as did the revenue per passenger mile. This latter was 2.349 cents; the year before

it was 2.744. The average journey was 56.8 miles as compared with 45.43 in the preceding year.

It will be observed that the gain in net receipts is due to a saving in operating expenses, and as the company has not increased its funded debt and has no floating debt, and as it has perfected its line into St. Louis and to the Gulf, and managed to improve its physical condition in spite of the decline in revenues, it would appear that its condition is more hopeful than ever before.

Among the improvements of the year has been the bringing of 14 miles of track at Dennison, belonging to the Southwestern Coal and Improvement Co., into the main system, adding to the facilities at that city. This has been done by a lease to the company for 50 years. This same coal company purchased during the year nearly 2,000 acres of coal land in Kansas, containing probably about 8,000,000 tons of coal. These coal lands can be reached by the construction of a spur 16 miles long, leaving the main line about seven miles south of Parsons. The report does not state that the construction of this spur is immediately contemplated, but we judge from other knowledge that it is. The Missouri, Kansas & Eastern Railway, being the St. Louis extension, was opened for traffic on the first of April, and owing to its favorable grades, the cost of hauling into St. Louis is much reduced. The President points out the fact that the branch extending eastward from near Kansas City, reaches Holden only 35 miles from the main line. With this interval filled in there would be a direct and easy route over the Missouri, Kansas & Eastern between Kansas City and St. Louis, and in each of these cities the company now has good terminal facilities. The line would probably be a good one, not only from the actual revenue derived, but as a strategic line, and the management may consider the building of it.

It appears from the tables of traffic that cotton was the only one of the large items of freight business which showed an increase over 1893. The earnings from that were \$1,010,000, the increase being 14 per cent. Coal, live stock, lumber and grain all showed a decrease, and miscellaneous items of freight, including merchandise, which yielded in the aggregate \$2,921,000, showed also a slight decrease. The increased earning power of the system is shown in a table giving gross earnings for the last four months of the calendar year, for each year from 1888 to 1893, from which it appears that in 1893 they were nearly twice what they were in 1888. Since the close of the fiscal year, that is, during the months of August, September and October, the gross earnings have increased nearly \$400,000 over what they were the year before, which is attributed largely to the entrance of the company into St. Louis.

Superintendent John C. Sanborn, of the Plymouth Division of the Old Colony system of the New York, New Haven & Hartford, is in jail, and a roadmaster, section foreman and two other employees of the road are in with him. The Superintendent and one other were sentenced for four months and the others for two months. As may well be imagined, this event has caused a sensation in Eastern Massachusetts and, according to the newspapers, the managers of the road are moving heaven and earth to get the prisoners released. These men were sentenced by Judge Sherman, of the Superior Court, at Plymouth, last week, for inciting a riot at Abington a year ago last August, when the workmen of a new electric street railroad tried to lay a track across the line of the Old Colony. A number of persons and some property were injured and there were numerous civil suits against the road besides these criminal proceedings. The latter have been postponed from time to time until the civil suits should be out of the way. These were finally settled by the company out of court, and the attorney for Sanborn and the others entered a plea of *nolo contendere*, on the strength of an alleged promise of the District Attorney to see that the punishment should be by fine and not imprisonment; but, like a thunder clap from a clear sky, the sentences handed down by the judge were for imprisonment. The District Attorney when asked to explain said that he had made no such promise. Every one was nonplussed and nothing could be done. A strong appeal has been made to the Governor for a pardon, the principal arguments being that the prisoners did not intend to go beyond the limits of the law and were upholding the rights of their employer; and that the counsel would not have relinquished the right of a trial by jury except on the understanding which he believed he had secured. We are exceedingly sorry for these gentlemen, for we have not the slightest doubt that they are good citizens. But what about the judge? We have no precise knowledge of the details of this case, but it is fair to assume that Judge Sherman saw a serious situation.* According

*Judge Sherman said he wished he could see his way clear to impose a light penalty, but it was evident that the men acted in violation of law. The Supreme Court had decided before the riot took place that the electric railway people had a right to cross the Old Colony's tracks, and the fact that an appeal to the full bench had been taken, and was then pending, offered no excuse for the defendants' action. The decision of Justice Knowlton had since been affirmed by the full bench. As extenuating circumstances, his honor said, it had been urged that the civil suits growing out of the riot had been settled by the corporation at a cost of about \$20,000; that the defendants were ordered by their superior officers and on the advice of the corporation counsel to do what they did, and that they were men of good standing, whose previous records were clear. These circumstances would have due weight. The extreme penalty for this class of offenses was three years' imprisonment, and the minimum one cent without cost. If he should not make the punishment heavy enough to be felt by these defendants the courts would be brought into disrespect. A wealthy corporation should stand the same in the eyes of the law as the humblest citizen. He felt that it was a painful duty for him to perform, but he could not do otherwise and be faithful to his office.

to the reports, there were tears in his eyes as he passed sentence. Rioting is not usually punished by a mere fine. It is true that electric railroads ought not to be built across standard railroads at grade, but if they get permission to cross, by due form of law, the only civilized way to get the permission revoked is by appeal to the law. Railroads are constantly asking the protection of the law and they must put up with its restrictions, as other folks do. These Old Colony men may have unwittingly stepped outside the bounds of peaceable conduct when they meant to keep within them, but that only serves to remind us that each individual is responsible for his own actions. "The power of a great corporation behind you," is a fine phrase, but a corporation is a child of the law and its physical power is of small account when once its father determines to give it a spanking. The Superintendent was "acting on the advice of counsel" and a Massachusetts paper says this counsel ought to be jailed. What justice there is in this view we do not know, but we do know that physical contests of this kind over crossings are far too common, in the East as well as in the wild and woolly West, and it is high time that the law was asserted. We advise superintendents who intend to be law-abiding citizens to let "counsel" throw their own brickbats for awhile; there will be fewer thrown.

The Chicago & Eastern Illinois has for some time printed its folders with Corbitt & Skidmore's patent type for showing night time, and the Cleveland, Cincinnati, Chicago & St. Louis has decided to adopt the same plan. These types consist of blocks in which the figures showing the hours are cut, so that the impression shows white figures on a black ground. The time is divided at evening and morning, the black blocks being used for 6.00 evening to 5.59 morning. Thus a train whose trip extends from 4 p. m. to 8 p. m., will have the first portion of its schedule printed in ordinary type, and the latter portion in white-faced. By this plan the use of the letters a. m. and p. m. is dispensed with. The night figures on black ground are much more conspicuous, being more decidedly different from common type than are the full faced types used for p. m. time in the *Official Guide* and in some time-tables. In this respect the Corbitt & Skidmore plan is more pleasing and convenient for the reader than that which prevails in the *Official Guide*; and dividing the day at sunrise and sundown (as near as possible) instead of at noon and midnight gives an appearance of naturalness which is lacking in the other. While it may be impossible and perhaps unnecessary to decide which is the better of the two plans, it is at once obvious that the main immediate objection to the new one is the liability to confusion. Thus, one who has become accustomed to the *Official Guide*, on reading 4.30 in the ordinary light-faced type may carelessly call it a. m., instead of p. m. as he should, because he has got into the habit, by long practice, of interpreting 4.30 in ordinary type to mean 4.30 a. m. The success of the new system would seem to depend largely on whether the majority of users find this a real difficulty. Perhaps it could be obviated by using for day time a style of type too full-faced to be confounded with the *Official Guide's* light face, and not enough so to be taken for regular full-faced type. A minor question is that of expense and convenience in printing time-tables. From the appearance of the tables thus far issued we conclude that a separate block is made for each minute of each hour from 6.00 p. m. to 5.59 a. m. Each type-setter, therefore, would need a supply of 720 kinds of the special type, to say nothing of the need of a variety of sizes.

Great damage was done to the telegraph lines east of New York by the wet snow and high winds on the night of Nov. 5, and there was a good deal of delay in the transmission of election returns. Twelve miles of poles were down on the Shore line between New Haven and New London, and many poles were down between New Haven and Hartford and between New Haven and Willimantic. On Tuesday the first communication between New York and Boston was via Albany, Springfield and White River Junction. There were more than 300 poles down between Worcester and Boston, and 70 or 80 between Springfield and Worcester. The *Springfield Republican* administers the following lecture to the Western Union:

The storm that swept over this section Monday night was not worse than a dozen storms we are likely to have before the winter is over. But it sufficed to break down the telegraph poles by the score and to paralyze the service throughout a wide space of country. This has come to be no unusual occurrence. Every winter sees the telegraph service prostrate half a dozen times or more. Every considerable storm of snow or sleet or even rain knocks over long lines of poles and mixes up the wires in inextricable confusion. What is the matter? If the poles are not rotten, they are overloaded. . . . It is unreasonable that the civilized world to-day should be asked to submit to this frequent interruption of telegraph service. The activities and interests of men have grown into a dependence upon quick communication by wire which cannot tolerate these uncertain breaks in the service that come as regularly as the storms. There is something to be said against government ownership and operation of the telegraph service. But the public would not submit quietly to a government service interrupted as that now is which we have. If the trouble was the rottenness of the wooden poles, new ones would be insisted on. If the trouble was with the wooden pole per se, iron ones would be demanded. Let the Western Union find better poles, or put its wires underground.

Doubtless this censure is substantially just. The Western Union, like some railroads, has in many places devoted

its energies to cheapening rates when it ought to have devoted them to improving the service. The railroads are interested in this matter, for their wires, either owned or used under contract, are often, perhaps generally, on Western Union poles. After the great storm of 1888, some roads talked of putting wires under ground, but we never heard that any one carried out the plan. But every road can have the poles set far enough from the track to avoid danger to trains in case a pole falls over. This is necessary whether you are satisfied to run trains a day or two without the telegraph, or not.

The activity and strength of the stock and bond markets which followed the election were encouraging; and perhaps the most favorable result of the revolution was the complete overthrow of the Populist party. The organization in one form or another has been largely responsible for the legislation which has helped to make railroads unprofitable, has driven away capital and deprived that remaining and unable to get away, of its earning power. The defeat of this party must be regarded as a step in the direction of reconstruction, and the firm tone of the Wall street stock market reflects the change. Professionalism has reigned for many weary months, and it is too much to expect a complete change in a week or a month. However, there are already signs of a broadening of transactions which indicate that financiers are alive to the change in conditions. Last week every active stock, with a single exception, advanced, some very sharply. Since Monday of this week there has been manifest a reactionary tendency which is but natural. But the most important event has been the rapid advance of the bond market. The activity has been pronounced, the transactions amounting to over two and one-half millions per day. Months ago the "gilt-edged" class of securities, under a demand from idle capital, advanced to a point which rendered them undesirable as dividend earners, as their yield was often less than 4 per cent. The lower-priced, or second and third-class issues are now being taken. The amount in which they are being bought, and their steady appreciation in value, foreshadow a result exactly similar to that which occurred in the first-class issues, viz.: they will reach a point where they will be no longer very desirable as investments. The discrimination which purchasers are exercising is striking. The bonds of roads in the Southwest have been greatly depressed, owing to the low freight rates. These have now come into heavy demand; excellent earnings from that section also helped the movement. In fact it can be said that nearly every issue of bonds which is brought nearer sure interest payments, through either the election or railroad reorganization, has been active and advanced sharply. There was hardly an issue that declined in the week and many appreciated two and three points.

October gross earnings were a little better than those of September, but not much. The *Chronicle's* reports for over 98,000 miles of road show a decrease of 5.59 per cent. In September the decrease was 6.22, but October of last year was a much better month than September, so the comparison is more favorable than it seems on its face to be. One of the great causes of the bad showing is naturally the loss of the World's Fair traffic—or rather the comparison this year with the month of the heaviest World's Fair travel last year. For instance: The St. Paul, which loses in all about \$932,000, loses from passenger earnings \$501,000. The Illinois Central, whose aggregate loss is \$869,000, loses in passenger earnings nearly \$800,000; that is almost all of its decrease. Rock Island loses in gross \$526,000, but in passenger earnings its loss is \$369,000. The New York Central & Hudson River loses \$514,000, and its loss in passenger earnings is \$307,000. But beyond all this there is the record of very serious loss in the grain movement. This, as is now well known, has fallen off tremendously this year. The October receipts of wheat at the leading interior markets were only 19,000,000 bushels, compared with nearly 25,000,000 in the corresponding four weeks of the last year before. The receipts of corn were less than 4,000,000, as compared with nearly 15,000,000 the year before; and in oats they were a little over 7,500,000 against 13,500,000. The southern and southwestern roads, which have a large cotton movement, are generally gainers, and this group makes in the sum the best showing.

The report on Atchison, of Mr. Stephen Little, is received by us too late for anything more than a brief notice of its general conclusions. Mr. Little found that the system earned enough to pay 3.75 per cent. interest on its outstanding 4 per cent. bonds, assuming that its great floating debt will be provided for otherwise. If the operating losses on auxiliary companies are allowed for, the earnings of the system would amount to 4.09 per cent. on the general mortgage bonds. But, unfortunately, these earnings are dependent to a considerable extent upon maintaining the integrity of the entire system, including the losing auxiliaries. The deduction then is that in order that the system may be held together and interest may be paid on its general mortgage, some of the securities of the auxiliary lines must be scaled. The gross unfunded debt of the entire system is \$15,106,381; the gross offsets \$4,696,173, and the net unfunded debt is \$10,410,202. Further, the indebtedness of the Atlantic & Pacific, amounting to

\$5,889,535 to Atchison, and \$6,894,200 to the St. Louis & San Francisco, and the indebtedness of the latter company to Atchison, amounting to \$1,661,269, and of the Colorado Midland \$1,595,916, or in all \$16,049,919, is apparently worthless, and should be written off to profit and loss. On April 30, the Atchison owed matured interest on bonds \$4,545,195, not included in the floating debt statement previously given. Then there are accrued liabilities not yet due and various other items, the sum of which is that including overdue interest and all liabilities of a contingent character, the Atchison, the St. Louis & San Francisco, the Atlantic & Pacific and the Colorado Midland owe \$25,410,594.

Now at last Russia is going for our petroleum trade. The Russian Government asks the German railroads for joint tariffs with reduced special rates for Russian petroleum from stations on the Volga and from Odessa to the principal German towns east of the Elbe, including Dresden, Leipzig and Halle, and to show that it is willing to do its part it notes the recent reduction from 26 to 12½ cents per 100 lbs. from the wells on the Caspian to the Black Sea at Batum. This measure is required, it is said (and here is the meat in the coconut), by competition with American petroleum, "after an attempt at regulating the competition of the two producing districts had failed." And so is Rockefeller to compete with the pauper labor of Asia? Forbid it, the University of Chicago! More effective in forbidding it, however, may be the great refining interests on the North Sea.

THE SCRAP HEAP.

Fast Run on the Pennsylvania.

A special train carrying officers of the Pennsylvania Road was run from Jersey City to Pittsburg on Nov. 5, in 9 hours and 38 minutes, or at the rate of 44½ miles an hour. The train ran over the Trenton Cut Off, by which the distance is 431 miles. The train started from Jersey City at 8.30 a. m., and it was the intention to run through in 8½ hours, but the engine had to be changed near Tyrone on account of a hot journal and that caused a serious delay. There were four cars in the train, one smoking, one dining and two passenger cars. A helper was used on the steep grade from Altoona to Gallitzin, and the 12 miles between these points was traversed in about 12 minutes.

Snow Sheds.

The big snow shed on the Union Pacific, near Sherman, nearly half a mile long, was destroyed by fire Tuesday night. The cause was probably sparks from a locomotive. The shed will not be rebuilt. The managers hold that the sheds are not necessary, and are dangerous. The Union Pacific now builds snow fences, where the snow is heaviest, and with modern plows they are successful in keeping the tracks clear. Several wrecks have been caused in the sheds by range cattle wandering in for protection from the storms, and several section men have met death in these buildings. The present management is making no effort to keep up the sheds, and will rebuild none that are destroyed.—*Omaha World-Herald*.

A Fable of Present Interest.

A correspondent has sent us the following fable, as he calls it, in which we seem to dimly discern an application to certain late important legal decisions and the literature which they have called out:

An Irishman stole a cat. The owner had him arrested charged with stealing four cats. On trial it was proved that Pat stole a handsome young Maltese cat, and that her two kittens followed her to Pat's house. The fourth cat was shown to belong to a breed of roaming cats; it once belonged to the plaintiff, but was now everybody's cat and Pat did not steal it. He was fined for theft and was obliged to give up the whole Maltese cat family; but Pat was happy and he congratulated the world because he won three points out of four. Pat says he did not want the cat, but would rather have a Maltese bow-wow, which was recently born in his house, and the pup is his legitimate property, because it has no living ancestors except the three cats which he did not steal.

Canadian Electric Railroads.

Charters are being applied for with power to construct an electric railroad between Ottawa and Brockville; also an electric road connecting Hull with Aylmer; also to construct an electric road to join Buckingham with the main line of the Canadian Pacific. The Toronto, Hamilton & Niagara Falls Electric Railroad asks a charter to run a road from Toronto to Hamilton, thence to Niagara Falls, and also a branch line connecting Grimsby, Smithville and Danville. A charter is also asked with power to connect the municipalities of Bertie, Humberstone and Wamfleet and the villages of Fort Erie & Port Colborne with an electric road.

Pennsylvania Railroad Relief Association.

The Supreme Court at Pittsburg, Pa., has just issued a decision on the validity of the contract made by an employee of the Pennsylvania Railroad in joining the Voluntary Relief Association conducted by that company and its employees. Under this contract an employee, in joining the association, does not relinquish his right to sue the road for damages in case he is injured, but if an injury does actually occur he must then choose whether he will accept the benefits due to him from the Association or depend upon his chance of getting compensation from the company by a suit at law. He cannot get his money in both ways. Justice Mitchell sustains the legality of this arrangement. The decision was in the case of Ringle against the Pennsylvania Railroad. It says:

"The essential principle is that a contract between employer and employee, which preserves to the latter all his rights of action in cases of negligence, until after the facts have occurred and are known to him, is not against public policy. There is no waiver of any right of action that the person injured may thereafter be entitled to take. It is not the signing of the contract, but the acceptance of benefits after the accident that constitutes the release. The injured party, therefore, is not stipulating for the future, but settling for the past; he is not agreeing to exempt the company from liability for negligence, but accepting compensation for an injury already caused thereby.

"The agreement is that the acceptance of benefits, of course after the accident, shall operate as a release. In the present case there is an additional agreement that

the plaintiff shall execute such further instrument as may be necessary to evidence such acquittal, and it is argued that no such release had been executed by the plaintiff. But it is not necessary that it should be. The acceptance of benefits is the substance of the release, and the agreement for a further instrument is by its express terms a mere formality for convenience of evidence.

"It is further agreed that as the contract is between the Relief Association and the plaintiff, and no evidence that the railroad company has in fact paid anything into the treasury of the association, there is no consideration to support a release to the railroad company. It is not, however, worth while to discuss whether the defendant is in position to take advantage of a consideration moving from another party, but for its benefit, as the consideration from the defendant itself is abundant. As a member of the association it has assumed obligations to take charge of the administration and to pay all the operating expenses, to take care of the funds and to be responsible for their safe keeping; to guarantee the obligations of the association and to make appropriations to supply any deficit. This would be ample even if the amount of the consideration could be inquired into. The release being a complete bar to plaintiff's right of action it is not necessary to consider the evidence of negligence.

Where Railroads Are Run by the Government.

A Canadian newspaper reports that Mr. F. D. Laurie, Superintendent of the Cape Breton division of the Intercolonial Railway, has begun an action against A. C. Bertram, of the North Sydney *Herald* for \$10,000 damages, for criticism of Laurie's management.

A Niagara Cable Tramway Co.

The Niagara Cable Tramway Co., with a capital of \$40,000 is applying to the Dominion Government for a charter with power to construct a cable tramway across the Niagara River, consisting of cables stretched across the river from towers erected on either side.

CAR BUILDING.

The Mexican Central will let contracts this week for 300 box cars. The specifications call for the Fox steel truck.

The Peoria, Decatur & Evansville has prepared specifications for 200 box cars of 25 tons capacity. Receiver E. O. Hopkins was in New York this week on matters relating to this equipment, but the contract had not been given out at the time of going to press.

The Bloomsburg car works have received a contract for 100 steel cars, of eight tons capacity each, for a company in Cuba, to be used in transporting sugar cane.

BRIDGE BUILDING.

Belleville, Ont.—The Gordon bridge here is to be rebuilt; estimated cost, \$15,000.

Bracebridge, Ont.—A new bridge is to be constructed over the river here next spring, at a cost of \$25,000.

Byron, Ont.—A new bridge is to be constructed over the river here. Commissioner Talbot is calling for tenders for a Howe truss bridge of two spans, one 98 ft. and the other 134 ft.

Cincinnati, Ohio.—The engineering department of the Baltimore & Ohio Southwestern is now busy with plans for new bridges on all of the divisions of this railroad. The work now proposed includes the building of over 30 bridges. The longest of these is 600 ft. and there are three with spans of 216 ft. A number of the bridges will be plate girder spans and the contracts for most of these have been given out.

Clinton, Mass.—The Groton Bridge & Mfg. Co. of Groton, N. Y., has a contract to build a bridge across the Nashua River for the road commissioners for the contract price of \$3,450.

Denver, Col.—Proposals for supplying and erecting a new steel through bridge across the South Platte River at Thirty-eighth street, in Denver, will be received at the office of the Board of Public Works, until Nov. 21. The bridge is to have two spans of three Pratt trusses each, two 16-ft. roadways, and two 8-ft. sidewalks, and to be built upon tubular foundations, with a clear length between the two end rows of cylinders of 200 feet. Detailed plans and specifications for said bridge will be on file with the chief engineer, but no plans will be given out.

Edmonton, N. W. T.—The construction of a bridge across the river at this place will be commenced at an early date by the Dominion Government; the cost will be about \$60,000, and the Town Council has agreed to make a grant of \$15,000.

Hull, Que.—F. A. Hibbard, C. E., has completed the construction of the first concrete bridge erected in the Ottawa district. It spans Brewery Creek in Hull, opposite Ottawa.

Louisville, Ky.—The engineers of the Phoenix Bridge Co., which is building the Louisville & Jeffersonville bridge across the Ohio River at Louisville, now expect to have the structure completed within two weeks. Work will then be pushed as rapidly as possible on the approaches and it is thought that the bridge may be opened for traffic by Jan. 1 next.

Montreal, Que.—Mr. P. W. St. George, City Engineer, is calling for tenders for the steel superstructure and trestle bents for a bridge over the Canadian Pacific tracks on Notre Dame street. The bridge will cost about \$125,000.

Ottawa, Ont.—The Lorne bridge at Wellington, on the Rideau Canal, is to be rebuilt this winter. The piers are to be of wood and the superstructure iron. The bridge is 500 feet long.

Pittsburg, Pa.—Sealed proposals will be received at the office of the City Controller until Nov. 24, for the erection of a steel bridge over the Monongahela River, from South Twenty-second street to Forbes street, at Soho. Plans and specifications can be seen and blanks for bidding can be obtained at the general office, Department of Public Works.

Rome, N. Y.—Sealed proposals will be received by the Common Council of Rome, N. Y., until Dec. 3, 1894, for the construction of a swing bridge over the Black River Canal, on Garden street, in the city. General specifications can be seen at the office of the city chamberlain. Bids should be addressed to K. S. Putnam, city chamberlain.

Scranton, Pa.—Common Council has approved the committee's report awarding the contract for building the sub-structures of the Linden street and Roaring Brook bridges to Messrs. Muldoon & Bowie. Following are the contractors' bids: Roaring Brook bridge, Burke Bros.,

\$15,099.40; Muldoon & Bowie, \$12,588; Paul Dunn, \$14,774; Joseph Hendler, \$23,865. The engineer's estimate was \$17,519. Linden street bridge, Burke Bros., \$13,225; Muldoon & Bowie, \$11,061; Broadhead & McConnell, \$14,738; Paul Dunn, \$13,195; Joseph Hendler, \$18,494. Engineer's estimate was \$15,007.

Thomaston, Conn.—The contract for building the new iron bridge across the river has been awarded to the Berlin Bridge Co., and is to be completed ready for use by Jan. 1, 1895. The covered bridge, which will be removed, was built in 1837. In 1872 a stone centre pier was put in.

Winnipeg, Man.—Plans and description of the passenger and traffic bridge across the Assiniboine River at this point, have been deposited with the Dominion Government for approval in accordance with the law.

MEETINGS AND ANNOUNCEMENTS.

Dividends.

Dividends on the capital stocks of railroad companies have been declared as follows:

Chicago & Alton, quarterly, \$2 per share on the common and preferred stock, payable Dec. 1.

Stockholders' Meetings.

Meetings of the stockholders of railroad companies will be held as follows:

New York & Lake Erie & Western, annual, New York City, Nov. 27.

New York, Pennsylvania & Ohio, annual, Cleveland, O., Dec. 5.

Port Royal & Augusta, annual, Augusta, Ga., Nov. 20.

Technical Meetings.

Meetings and conventions of railroad associations and technical societies will be held as follows:

The *New York Railroad Club* meets at the rooms of the American Society of Mechanical Engineers, 12 West Thirty-first street, New York City, on the third Thursday in each month, at 8 p. m.

The *New England Railroad Club* meets at Wesleyan Hall, Bromfield street, Boston, Mass., on the second Wednesday of each month.

The *Central Railway Club* meets at the Hotel Iroquois, Buffalo, N. Y., on the fourth Wednesday of January, March, April, September and October, at 10 a. m.

The *Southern and Southwestern Railway Club* meet at the Kimball House, Atlanta, Ga., on the third Thursday in January, April, August and November.

The *Northwestern Railroad Club* meets at the Ryan Hotel, St. Paul, on the second Tuesday of each month, at 8 p. m.

The *Northwestern Track and Bridge Association* meets at the St. Paul Union Station, on the Friday following the second Wednesday of March, June, September and December, at 2.30 p. m.

The *American Society of Civil Engineers* meets at the House of the Society, 127 East Twenty-third street, New York, on the first and third Wednesdays in each month, at 8 p. m.

The *Western Society of Engineers* meets on the first Wednesday in each month, at 8 p. m. The headquarters of the society are at 51 Lakeside Building, Chicago.

The *Engineers' Club of Philadelphia* meets at the House of the Club, 1122 Girard street, Philadelphia, on the first and third Saturdays of each month, at 8 p. m.

The *Engineers' and Architects' Club of Louisville* meets in the Norton Building, Fourth avenue and Jefferson street, on the second Thursday in each month, at 8 p. m.

The *Association of Engineers of Virginia* holds informal meetings on the third Wednesday of each month, from September to May, inclusive, at 710 Terry Building, Roanoke, at 8 p. m.

The *Boston Society of Civil Engineers* meets at Wesleyan Hall, 36 Bromfield street, Boston, on the third Wednesday in each month, at 7.30 p. m.

The *Engineers' Club of St. Louis* meets in the Missouri Historical Society Building, corner Sixteenth street and Lucas place, St. Louis, on the first and third Wednesdays in each month.

The *Engineering Association of the South* meets on the second Thursday in each month, at 8 p. m. The Association headquarters are at The Cumberland Publishing House, Nashville, Tenn.

The *Engineers' Society of Western Pennsylvania* meets in the Carnegie Library Building, Allegheny, Pa., on the third Tuesday in each month, at 7.30 p. m.

New England Railroad Club.

The regular meeting of the Club will be held at Wesleyan Hall, 36 Bromfield street, Boston, Wednesday, Nov. 14, 1894, at 7.30 p. m. A paper will be read by W. W. Snow, on Norway. Francis M. Curtis, Secretary and Treasurer. Address P. O. Box 1,576, Boston.

Claim Agents' Association.

This association held its semi-annual meeting at Buffalo last week. Papers were read by William E. Jones, of the Union Pacific, and W. P. Brady, of the Burlington, Cedar Rapids & Northern. John R. Manchester, of the Union Pacific, was elected President for the ensuing term.

Western Railway Club.

The November meeting of the Western Railway Club will be held at the Great Northern Hotel, Chicago, on Tuesday, Nov. 20, at 2 P. M. The discussion will be based upon the paper read by Mr. A. M. Waitt at the October meeting on the M. C. B. coupler, and will be opened by Messrs. G. W. Rhodes, J. N. Barr, and F. H. Clark. The various coupler companies have been invited to send representatives to participate in the discussion, and it is expected that the meeting will be one of the most important and interesting in the history of the club. Mr. J. N. Barr will read a paper on the "Scrap Pile" and it is expected that the Committee on Interchange appointed at the September meeting of the Club will make its final reports.

PERSONAL.

—Mr. F. L. Hart of New York City has been appointed General Superintendent of the Baltimore City Passenger Railway Co.

—Gen. James H. Williams has resigned as Land Commissioner of the Atlantic & Pacific Road, a place that he has held since 1881.

—Mr. H. B. Potter, who was at one time Engineer of Maintenance of Way of the Troy & Greenfield Railroad and Hoosac Tunnel, and recently with the Ramapo Iron Works, is to become general representative of the Wharton Railroad Switch Co., of Jenkintown, Pa.

—Mr. James H. Mills, for the past 12 years New England Freight Agent of the Chicago, Rock Island & Pacific Railroad at Boston, died at his home in Somerville last

week. Previous to going with the Rock Island he was for many years Chief Clerk in the freight department of the Boston & Albany.

—Mr. William Moncure has been appointed Roadmaster for the Eastern division of the Carolina Central Railroad, a part of the Seaboard Air Line system. He was formerly Superintendent of the Central Division of the Seaboard Air Line, and under the new appointment will have his headquarters at Hamlet, N. C.

—Mr. H. W. Fuller, General Passenger Agent of the Chesapeake & Ohio, who has been at his farm at Keswick, Va., for a number of weeks, has so far recovered from the injuries he received in the wreck on the C. & O. several months ago, that he proposed to leave for Washington this week to resume his duties as General Passenger Agent.

—Mr. C. W. Huntington, for the past two years Assistant Superintendent of the Des Moines Northern & Western, having charge of the Boone Line has been appointed General Superintendent of the Iowa Central Road, by General Manager L. M. Martin, who until recently held a similar position on the Des Moines, Northern & Western.

—Capt. James M. Phillips has retired from the position of Superintendent of the Kentucky Union Road, after serving for four years. The road is now operated as the Lexington & Eastern, the control having passed to new owners at the foreclosure sale. It is stated that Capt. Phillips will return to Texas, where he was formally Superintendent of the Gulf, Colorado & Santa Fé.

—Mr. George W. McGuire, of Cleveland, is hereafter to give his entire attention to the interests of the National Malleable Castings Co., with which he has long been connected, withdrawing from active relations with the Butler Drawbar Attachment Co. He is to spend this winter in the South, probably at Savannah, looking after the southern trade of the company, particularly the introduction of the Tower car coupler.

—Mr. E. P. Waring, of Charleston, S. C., who has been connected with the traffic department of the South Carolina Railroad for many years, has resigned to accept a position with the Central of Georgia at Savannah. Mr. Waring entered the service of the South Carolina Railroad as a clerk in the freight department in 1867, immediately upon leaving college, and has been with that company continuously. He was General Freight and Passenger Agent of the railroad previous to its reorganization as the South Carolina & Georgia Railroad.

—In attempting to record last week the appointment of Mr. Charles H. Schlacks as Assistant General Manager of the Denver & Rio Grande Railroad, we blundered in assuming that the announcement referred to Mr. Henry Schlacks, Superintendent of Machinery of the road and the father of Mr. C. H. Schlacks who has received the appointment. Such slips do occasionally occur in other well ordered offices and conscientiously edited journals, but even with the comfort we secure from that reflection the error is still humiliating. We trust that the young man's life will be as eminent and as worthy of honor as that of his father has been.

—Mr. William N. Bannard, has resigned as Superintendent of the Altoona division of the Pennsylvania to accept a similar position on the New York Central, with headquarters at Buffalo. Mr. Bannard is a graduate of the Massachusetts Institute of Technology, and entered railroad service as rodman of the West Jersey's engineering corps in 1869. From 1872 to 1880 he was Resident Engineer of the same road. On Dec. 15, 1880, he became Engineer of the Pennsylvania's New York division. From March 6, 1883, to Nov. 15, 1884, he was Superintendent of the Camden & Atlantic and was then given the Superintendency of the Pennsylvania's Schuylkill division. On Dec. 8, 1884, he became Superintendent of the Amboy division, and Feb. 1, 1891, was transferred to the Altoona division.

ELECTIONS AND APPOINTMENTS.

Atchison Topeka & Santa Fé.—W. G. Nevins, Chief Clerk in the office of General Manager Yoakum, of the Gulf, Colorado & Santa Fé Railroad, at San Antonio, Tex., has resigned to go to Chicago as assistant to D. B. Robinson, First Vice-President of this company. Mr. Robinson's former assistant resigned on account of ill health and has been transferred to a position on the line in New Mexico.

Buffalo, Rochester & Pittsburgh.—R. G. Mathews, who has been acting General Superintendent since the resignation of J. H. Barrett, has been given the full title.

Central of Georgia.—The office of Controller having been abolished their receivers have announced that the duties of that office will be performed hereafter by W. D. Basley, general agent for the receivers.

Findlay, Fort Wayne & Western.—A consolidation of the Fort Wayne & Eastern Railway of Indiana and the Ohio Railway Co. has been effected. The new road will be known as the Findlay, Fort Wayne & Western Railway Co., and the officers are: G. L. Day, President; C. G. Patterson, Vice-President; C. T. Lewis and H. B. Ely, Treasurers. The following Directors were elected: G. L. Day and John Jacob Astor, of New York; J. H. Dayles, C. T. Lewis and A. W. Scott, of Toledo, and C. N. Haskell, of Ottawa, O.

Great Northern.—F. H. Britton has been appointed Superintendent of the Montana division of the road, with headquarters at Havre, Mont., vice R. W. Bryan, acting Superintendent, resigned. Mr. Britton has been Train Dispatcher on this division.

Iowa Central.—J. H. Redmond having resigned as Superintendent, Mr. C. W. Huntington has been appointed General Superintendent of this company.

E. L. Shinkle has been appointed General Agent for this company, with headquarters at Oskaloosa.

Lexington & Eastern.—The following new appointments are announced: Charles Scott, General Passenger Agent; J. R. Barr, Engineer Maintenance of Way; George F. Foster, Master Mechanic, with headquarters at Lexington, Ky.

Louisville & Nashville.—F. H. Benjamin has been transferred from the position of Master of Trains for the Louisville division of the road, and A. G. Prazier has been appointed in his place. Mr. Prazier has heretofore been Chief Train Dispatcher for the Short Line division. The latter position is to be taken by John G. Fox.

Lyons Simmons, Chief Clerk in the Division Freight offices at Louisville, has been appointed General Eastern Agent of the road, with headquarters at New York.

Marquette, Tomahawk & Western.—The incorporators of this company, recently chartered in Wisconsin, are as follows: William H. Bradley and James W. Bradley of Milwaukee, Wis.; Frank G. Stark, A. H. Woodworth, and John P. Hughes, of Tomahawk, Wis.

Minneapolis & St. Louis.—General Manager A. L. Mohler, has announced the following appointments for the reorganized company. The heads of departments remain unchanged and are as follows: General Superintendent, T. E. Clarke; Chief Engineer, William Crooks; Auditor, O. C. Post; General Freight Agent, W. M. Hopkins; Assistant General Freight Agent, R. G. Brown; General Ticket and Passenger Agent, A. B. Cutts; Roadmaster, P. McElroy; Master Mechanic, John Tonge; Superintendent of Bridges and Buildings, W. B. Hixson; Assistant Superintendent, H. S. Holm; Purchasing Agent, S. M. Lohen; Superintendent Telegraph, W. F. Fox; Car Accountant, Clinton Brooke. The road will be divided into three divisions, as follows: Albert Lea division, Minnesota to Albert Lea, inclusive; Fort Dodge division, Albert Lea to Angus, Iowa; Minnetonka division, Hopkins to Morton, Minn. The operated lines include the Mankato division, Red Wing to Mankato; Dakota division, Morton to Watertown, S. D.; St. Paul division, Minneapolis to St. Paul.

New York, Lake Erie & Western.—George Donahue, general foreman of the shops at Susquehanna, has been appointed master mechanic of the N. Y., P. & O. shops at Cleveland. He will be succeeded by George Dinsmore, now employed at the Susquehanna shops.

George Donahue, general foreman of the Susquehanna shops, has been appointed master mechanic of the Mahoning division of the New York, Pennsylvania & Ohio, with headquarters at Cleveland, O., to succeed T. Carmody, resigned.

Willard Kells, general foreman of the locomotive shops at Meadville, Pa., has had his jurisdiction extended to include the car and locomotive department.

J. W. Morris, Roadmaster of the New York, Pennsylvania & Ohio division, has been appointed Division Engineer of the third and fourth divisions, to succeed W. P. Kimble, transferred.

North Carolina.—At a meeting of the Directors of the North Carolina Railroad, (a part of the Southern Railway) held at Raleigh, N. C., last week, Lee S. Overman, of Salisbury, N. C., one of the Directors, was elected President, to succeed W. F. Korner, who died on Nov. 1. The new President is speaker of the North Carolina House of Representatives and is a prominent lawyer, but his railroad experience is limited to his term as a Director of this road.

Pullman's Palace Car Co.—The office of contracting agent of the manufacturing department of this company having been abolished, all communications relating thereto should be addressed to George F. Brown, General Manager.

Raleigh & Gaston.—At the annual meeting of the railroad (Seaboard Air Line system) held at Raleigh, N. C., last week, Charles D. Fisher, of Baltimore, was elected, a Director to succeed Dr. W. J. Hawkins, deceased, and W. R. Tucker, of Raleigh, was elected a Director to succeed his father, the late Maj. R. S. Tucker. R. C. Hoffman, of Baltimore, was elected President, and all the other members of the old board of Directors were re-elected.

Richmond, Petersburg & Carolina.—Messrs. Archibald A. Hutchinson, William G. Dacey, Paul F. Mohr, Oliver W. Barnes, and James H. McCreery, of New York City, are the purchasers of the railroad. Richard B. Davis is their counsel in Petersburg, Va.

Seaboard & Roanoke.—The stockholders of the railroad held a meeting at Hartland, Me., last week. Directors were elected as follows: Z. D. Lancaster and Frank W. Hovey, of Pittsfield; Amasa J. Moore, of Hartland; J. O. Bradbury, of Saco, Me., and Wesley Vanwart, of Fredericton, N. B. Frank W. Hovey, was chosen Secretary and Treasurer; Z. D. Lancaster was chosen President and General Manager. The latter has recently obtained the controlling interest in the road.

Southern California.—At the annual meeting of the stockholders of the Southern California, Aldace, F. Walker, of Chicago, was elected President, which place has been vacant since the resignation of President Reinhart last September. The new members of the Board of Directors are: J. T. Woodward and W. F. Roosevelt, of New York; C. W. Wood, of Brooklyn, and E. B. Wesley, of Rye, N. Y. No other changes were made.

Union Pacific, Denver & Gulf.—H. H. Smith, for many years Chief Clerk in the general freight office at Denver, has been appointed Assistant General Freight Agent of the road.

Wheeling & Lake Erie.—W. H. Vance has been appointed General Coal Freight Agent of the railroad, and the office of Coal Traffic Agent has been abolished.

RAILROAD CONSTRUCTION, Incorporations, Surveys, Etc.

Bangor & Aroostook.—The officers expect to be able to run their first train north of Houlton into Presque Isle this week. Houlton has been the terminus of the operated line since last December. The construction forces are now working north of Presque Isle and the officers hope to complete the track laying this season to Caribou, Me., about 26 miles north of Presque Isle. When the lower division of the road was being completed in 1893, the track was laid on the last 52 miles of the railroad into Houlton between Nov. 8 and the middle of December, and the officers believe that with that record to their credit they will be able to get their line into Caribou before the winter weather stops further work this year. Some excellent work has already been done on the track laying this year, north of Houlton, and a good deal of the distance has been covered at the rate of over three miles a day, when the amount of rails on hand permitted fast work.

Bellaire, Zanesville & Cincinnati.—The work of changing to standard gage the 9 miles of road purchased from Bellaire County by this company early in the year is now going on. About half the work has been completed and the rails are to be laid by Dec. 1 next. The entire road now in operation is likely to be made standard gage within a short time.

Bellefontaine Central.—The short extension of this railroad from State College, Pa., is now likely to be completed within a few weeks. The terminus of the railroad will then be at Pine Grove's Mills, about eight miles through the southern part of Center County, reaching valuable iron ore deposits and a well-cultivated farming district. There is said to be some possibility of the railroad being continued to Bedford County to connect with the Southern Pennsylvania.

Binghamton & State Line.—The right of way for this line through the property near Binghamton, N. Y., is now being secured and the forces will be put on the work south of that town as soon as the right of way can be deeded and the weather permits. The section of the road located in New York State is under contract of Miles Leonard, of Binghamton, N. Y., that work having been let in September last. Up to the present time about three

miles of the road has been graded, the contractor having 200 men now on the work. The road has been located south of Binghamton through the towns of Rossville, Hawleyton, Ingraham Hill, Vestal Center to the Pennsylvania State line, a distance from Binghamton of 25 miles. Surveys are now being made on the Pennsylvania section of the road, which is incorporated as the Binghamton, Pennsylvania & Southern. Contracts for that line will probably be let in February. The work in New York State averages about 20,000 cubic yards per mile, 20 per cent. being rock work, 50 per cent. hard pan and 30 per cent. earth work. The maximum grade is 105 ft. to the mile, and the permanent maximum curvature 10 degrees, although curves of 18 degrees will be used in building the line in order to avoid heavy work at present. The only trestle of importance is one of 225 ft. long and 40 ft. high. B. E. Kattell, of Binghamton, is President and A. K. Harvey is Chief Engineer.

Canadian Roads.—Notice is given of application to the Dominion Parliament next session for a charter to construct a railroad from the City of Quebec westerly to a point near Norway House, north of Lake Winnipeg, thence northwesterly by either Peace, Pine or Smoky Rivers and the Yellow Head Pass and the Rocky Mountains, to a point on the Pacific Coast; also with power to construct a branch from the main line near Pine Island Lake to a terminus on Hudson's Bay.

Central Counties.—The first rails will be laid on this railroad, running from South Indian to Rockland, Ont., this week. The line has been graded for a distance of 17 miles, between the points named. Connection is made with the Canadian Pacific at Rockland, and at South Indian with the Canada Atlantic.

Central of New Brunswick.—Dr. de Bertram, of Brooklyn, the President of this railroad reports, that the extension of the road to Fredericton, N. B., will begin next spring. About 15 miles is to be built next summer, so as to reach Queens County coal fields. The work will be proceeded with as rapidly as possible after that until the line is constructed to Fredericton, a distance of about 45 miles.

Chicago & Eastern Illinois.—The company is building a track parallel to the Peoria & Eastern, a distance of one and a half miles, to reach the coal mines at Oakwood, Ill., independent of the Peoria & Eastern.

Choctaw, Oklahoma & Gulf.—The contract for the line to connect the Eastern and Western divisions of this railroad into the Indian Territory has been let to the firm of George S. Good & Co., of Lock Haven, Pa., which is composed of George S. Good and James Kerr, the Clerk of the House of Representatives. This firm built the extension of the Buffalo, Rochester & Pittsburg into the Clearfield County coal regions and has done a good deal of other railroad building in Pennsylvania and other States. The road which they have now undertaken is to be 122 miles long from South McAlester west to Oklahoma City, connecting, as already stated, two divisions of the railroad which have been in operation some years. They expect to have headquarters established at South McAlester by Nov. 19, and to have the work well under way before the end of the month. The terms of the contract under which they take the work are not published, but it is believed that the contractors accept in partial payment the second mortgage bonds of the railroad. They expect to have a force of 4,000 men on the work within a short period. There is some heavy rock work on the line, and this and other portions of the work will be let to sub-contractors. J. F. Hinckley will be Chief Engineer for the Company in charge of the construction work. The chief offices of the company are at Philadelphia; Franklin I. Gowen, President and General Manager, being located at that city.

Cincinnati, Georgetown & Portsmouth.—Vice-President E. W. White, with a party of engineers, is going over the route for the proposed extension between Georgetown and West Union, Ohio. West Union is the county seat of Adams County and is several miles from any railroad. The route to be surveyed is about 24 miles in length and will take the road through a good country, with fine timber and quarries.

Cincinnati, Union City & Chicago.—This project for a line of about 50 miles through Eastern Indiana is understood to have been definitely abandoned by the projectors. The road has been talked of for many years, and some time ago J. C. Fawcett, of Louisville, was elected President. He was able to begin the construction work during the summer, and about 20 miles of grading was finished before financial troubles came. This work was done by Bracey Brothers & Co., of Chicago, but they suspended work in August, having a large claim against the company. Efforts to settle this indebtedness and to resume work on the railroad have failed. The road was projected to extend from Union City just east of the Ohio State line, north through Portland and Bluffton to a junction with the Chicago & Erie near Huntington, Ind. The total distance is 60 miles, one-third of which to Portland has been graded. The idea of the projectors was to secure a shorter line between Cincinnati and Chicago, using the tracks of the Cincinnati, Hamilton & Dayton south of Union City into Cincinnati.

Coos Bay, Roseburg & Eastern.—The extension south of Myrtle Point, Ore., which was undertaken during the summer has been suspended for the winter. The railroad is a project of R. A. Graham, a California railroad contractor, who is President of the company. It was built in 1893 from Marshfield, a town on Coos Bay, near the Pacific Coast south to Myrtle Point, about 20 miles. The road continued in operation to that point to 1893 without further extension, but during the present year some of the bonds of the company were disposed of in London and in August work on the extension south of Myrtle Point was resumed and several miles have been finished since that time. It was expected to do considerable work during the winter, but this work has been given up. The railroad will enter rich coal and timber lands in Eastern Oregon in which President Graham is largely interested.

Ebensburg & Black Lick.—That portion of this branch of the Pennsylvania, extending from its junction with the Ebensburg, Pa., branch of the Cambria & Clearfield division at Ebensburg, to the bridge over Black Lick, a distance of 12.5 miles, together with a branch to the mines of the Black Lick Coal Co., one mile, has been completed, and is now open for traffic. It will be operated as part of the Cambria & Clearfield division. Stations will be established at the following distances from Ebensburg: Buah Road, 2.9 miles; Nantyglo, 7.3 miles; Twin Rocks, 9.4 miles; Vintondale, 12.5 miles.

Fort Plain & Richfield Springs.—The grading on this railroad into Richfield Springs, N. Y., has been going on steadily for quite a time and is now making very good progress. It is thought that the grading will be completed as far as Richfield Springs, ready for the track laying before the end of the year. The line starts from Fort Plain, N. Y., on the New York Central road, and extends nearly westerly to the noted resort of Rich-

field Springs. The project has been talked of a great many years and work has been started a number of times by local companies. During the present year the project was taken up by New York people and has been carried through by them. Moody & Jackson, of 68 Broad street, are the representatives of the builders.

Georgetown & Granger.—M. P. Kelley, the manager of this railroad and the Trinity, Cammeron & Weston, estimates that the Georgetown division will be finished and trains running by Feb 15, between the two towns, which are about 15 miles apart.

Greenville, Nashville & Chattanooga.—F. I. Bates, of Memphis, has taken up this project for a railroad through Northeastern Mississippi. Four years ago the city of Corinth and Alcorn County, Miss., voted \$60,000 in bonds to the company if the railroad was built from Corinth to the Tennessee River, about 20 miles, provided this was within one year. Only a portion of the road bed was completed. The bonds were accordingly nullified. A constitutional provision prohibits the issuance of more bonds, but Mr. Bates hopes to secure other local aid.

Hot Springs & Wildcave.—Articles of incorporation were filed at Pierre, S. D., for this road last week. The capital stock is \$150,000, and the incorporators are B. Stackpole, John Stubler, George C. Smith, of Hot Springs; James W. Fowler, F. H. Whitfield, of Rapid City, S. D. The line is to extend for 12 miles from Hot Springs.

Leesburg, Emerald & Northern.—The line of this railroad has already been surveyed from Leesburg as far as Emerald, Fla. The company was chartered a few months ago to build a railroad between these two towns which are about 15 miles apart. Active work has been begun recently at Leesburg, Fla., and is to be pushed north from that town with the idea of having a portion of the line in operation to haul the next orange crop. The Engineer is C. S. Nowble, with headquarters at Leesburg, Fla.

Louisville, New Albany & Chicago.—Important improvements to the roadbed north of Indianapolis are now being carried on. New 70-lb. rails are being laid between Frankfort and Monon, a distance of 50 miles, this work progressing at the rate of two miles a day.

Mahoning State Line.—This company and the Carbon Limestone Railway Co. have consolidated under the name of Mahoning State Line, with a capital of \$60,000. The roadbed is in course of construction through Mahoning County, O., to Hilltown, Lawrence County, Pa. James H. Reed and John G. Robinson, of Pittsburgh, M. H. Wood, E. F. Wood and James P. Wilson, of Youngstown, O., are Directors.

Montcalm.—The railroad in the county of Montcalm, Que., is about complete, and the trains are now crossing on the bridge over the Lakewarrow River, constructed by W. E. Brown, of Digby, N. S.

Montreal Island Belt.—The Montreal Island Belt Railway has been granted permission by the City Council to construct an elevated railroad along the river front.

Montreal, Boston & Portland.—The Dominion Government will be asked to grant a subsidy for 21 miles of railroad to be built between Farnham, Que., and the International boundary.

Mountain Lake.—John Sexton, of Roanoke, Va., who lately secured the contract for the construction of the twelve miles of railroad from a point on the Norfolk & Western Railroad, four miles south of Pearisburg, into the Mountain Lake property, in Giles County, Va., has sub-let four miles of the work to each of the following parties: Saunders & Co., of Franklin County; Vaughn & Luck, and H. O. Rogers, of Roanoke. The bridge for the road over New River was sub-let to M. Gilliam, of Pulaski City. The road is to be completed by Feb. 1.

Monterey Mineral Railway & Terminal Co.—This company was organized recently in Baltimore. William Johnston, of Liverpool, President of the Johnston Line of steamships, was elected President; Charles K. Lord, Vice-President of the Baltimore & Ohio Railroad, was made Vice-President; John Gill, President of the Mercantile Trust & Deposit Co., was chosen Secretary and Treasurer. It is the purpose of the company, which has a charter under the laws of West Virginia, to go extensively into Mexican trade at the city of Monterey. J. A. Robertson, General Manager of the Monterey & Mexican Gulf road, is largely interested in the project. The Directors have authorized contracts with Ryan & McDonald, of Baltimore, for furnishing a large number of ore cars, which are to be used on a belt line of railroad around the City of Monterey, with the Rogers Locomotive Works, of Paterson, N. J., for engines, and another contract for rails, which are to come from Cardiff, Wales. The railroad, which is now being built under contract by Mr. Robertson, will connect the smelters and other large silver ore furnaces around Monterey, bringing them in direct communication with the Monterey & Mexican Gulf line direct to the coast at Tampico, whence the Johnston steamers run to Baltimore. The charter of the Monterey Co. is broad. Under it the incorporators are authorized to receive and use any concessions they may secure from the Mexican Government or from individuals in Mexico; to act as miners, smelters and prospectors; to build and own roads, etc.

Nakusp & Slocan.—General Superintendent Abbott, of the Canadian Pacific, at Vancouver, B. C., has recently made an inspection of this branch, in Southern British Columbia, and gives some particulars of the present aspect of construction work. The first 33 miles of road is almost complete, the track is well surfaced, and with a small amount of widening and sloping of the cuttings with the ballasting it will be in every way satisfactory. The grade is built into Three Forks. This portion of the road suffered seriously in the June freshets, the trestles and grades being often swept completely away. Its line is also over very difficult ground, a canyon on Carpenter Creek, the two together having considerably retarded the completion of the road. The line is to be operated all through the winter and until about Jan. 1, and will have steam connection to Wigwam on the Arrow Lake branch. At the present time there is a large quantity of ore moving out chiefly for the Omaha smelters. About one mile below Three Forks the concentrating works are rapidly approaching completion. These works will have a capacity of 100 tons a day.

New Roads.—J. Otto, of Chicago, said to be an extensive owner of property at Chicago Heights, is reported to be the chief projector of a new railroad in Florida to extend to St. Lucie, on the east coast of that State.

George C. Probst, of Cincinnati, has been in Waco, Tex., for several weeks in the interest of the projected railroad between the towns of Waco and Palestine. Mr. Probst made a number of addresses to the business men of the towns along the route and committees have been appointed to consider the requests made for local aid and right of way.

Isaac Witt, president of the Chamber of Commerce, of Staunton, Va., Henry Hutcheson and J. C. Shields, constitute a committee to confer with the authorities of the Norfolk & Western Railroad with reference to a branch road to connect Staunton with the Norfolk & Western system.

F. M. Garvin and E. M. V. Powell, of Harrison, Ark., have revived the project for a railroad from Springfield, Mo., southeast to Harrison in the northern part of Arkansas on which some work was done in 1892 by Kansas City interests, represented by W. E. Winner. The line will extend for over 25 miles through Boone County, in Arkansas to the town of Springfield, near the Missouri State line. Messrs. Garvin and Powell have asked a subsidy of \$100,000 from Springfield and a committee has been appointed to attempt to secure this amount. They agree to complete the railroad between Springfield and Harrison within 16 months if that proposition is accepted.

Nova Scotia Southern.—In an interview in a Yarmouth, N. S., paper, Mr. D. H. Andrews, of the Boston Bridge Works, is quoted as saying that he had taken up all the unsubscribed stock of this company, which is now building a standard gage road between Yarmouth and Shelburne, N. S., 70 miles. The Boston Bridge Works is to construct two turntables and eight steel bridges, the latter varying from 40 to 180 feet spans.

Ohio Southern.—The company has begun the track-laying on the extension recently graded to connect its line with that of the Pennsylvania so as to give it a Cincinnati connection. The rails are being laid from Jeffersonville, the station south of Springfield, O., where the new line branches from the main line of the Ohio Southern. The first 10 miles of track to the town of Midway, O., will be laid at once and opened for traffic this year. The entire extension will be about 30 miles long, the terminus being at the small station called Oregonia on the Little Miami Railroad, north of Cincinnati.

Oklahoma Central.—The contracts are reported to have been recently given out for building the first section of this line into the Indian Territory. The road is to start from Hunnewell, the terminus of a branch of the Atchison, Topeka & Santa Fé, near the south State line of Kansas, and extending through the country between the present lines of the Chicago, Rock Island & Pacific and the Atchison, Topeka & Santa Fé to Parker, in the Indian Territory.

Ottawa, Arnprior & Parry Sound.—Engineers are now surveying the line from Long Lake to Emsdale, Ont., on the Grand Trunk Railroad near Parry Sound, and have already located 20 miles. It was very difficult to get a suitable line over the first four miles from Long Lake, the present terminus. It is expected that the contracts will be given out this winter for the 60 miles between Long Lake and Emsdale. The road is being built by the Canada Atlantic Railroad, G. A. Mountain, Chief Engineer of that company, is in charge of the work.

Quebec Roads.—Notice is given for an act to incorporate a company to construct and operate a railroad, from some point at Priest's Bay on Lake Temisamingue to some point at Longue Pointe on Quinze Lake, in the county of Pontiac.—The Phillipsburg Junction is making application for power to construct a line of railroad westward to a point on the Richelieu River, in the county of Missisquoi.

Rumford Falls & Rangeley Lake.—Ward Brothers, who have a contract to build the first 18 miles of this railroad north of Rumford Falls, Me., have been working 400 men for a number of weeks. They are rushing the work to have as much of the road completed as possible before the ground freezes. Work will be continued during the winter on the rock work and the cuts. The road now building is an extension of the Portland & Rumford Falls Railroad and was first incorporated as the Swift River Railroad. It is ultimately to be continued to the Rangeley Lakes, about 30 miles beyond Rumford Falls.

Sebasticook & Moosehead Lake.—The control of this railroad has been recently transferred to Z. D. Lancaster, of Pittsfield, Me., and his associates, who were elected Directors at the annual meeting a few days ago. The new owners have plans for important improvements to the property, including an extension north about 20 miles to the village of Abbott, a station on the old portion of the Bangor & Arrostook Railroad, south of Greenville, Me.

St. Croix & Penobscot.—James Mitchell and George P. Wescott, of Portland, who are now the chief owners of this railroad in Maine, have recently been through Washington County on surveys for a proposed extension of 27 miles, between Princeton and Tomah, to connect with the Maine Central. It is probable that the work of building will be undertaken next spring. The city of Calais holds bonds on the road. An effort is being made to have the city surrender these bonds on condition that the extension is built.

Sumpter Valley.—An extension of this railroad through Baker County in Eastern Oregon for 25 miles beyond the present terminus, is likely to be undertaken early next year. The railroad is controlled by the Oregon Lumber Co., which is incorporated in Utah, being built by that company in 1892 to reach timber lands which it owns in Baker County. Messrs. Nibley and Dee, Directors of the lumber company, and President Eccles, of the railroad, have recently gone over the district through which it is proposed to build and they state that the extension will undoubtedly be built next year. The line now in operation extends southwest from Baker City, Ore., for 25 miles through a valuable timber district and reaches a country which besides timber has many other rich natural resources.

Texas Midland.—A good deal is being said now about proposed extensions of this railroad in Texas. The last one put forth in the local papers is a line from Ennis, the southern terminus, through Navarro County to Waco, one of the chief cities of Texas. The company has recently completed extensions of its line to Ennis on the southern end and to Greenville on the north.

Tuscarora Valley.—The extension of this line through Huntingdon County, to Blair's Mills, Pa., will probably be completed by Dec. 15. This extension is about five miles long from the present southern terminus of the line. The work is being done by the company, with J. C. Moorehead as Superintendent.

Union Terminal.—A portion of this road, which is the part of the Kansas City Suburban Belt, located in Kansas, reaching the stock yards there, is to be double tracked. The grading for this work is now going on, the contract having been let to Nelson Garcelon. The present line is about six miles long and was built in 1892 and 1893, the construction work having been long delayed on account of opposition of other railroads at Kansas City.

United Counties.—The company has this year built some 36 miles of line between St. Hyacinthe and Sorel,

Que., in the Province of Quebec. The line will be all complete and regular trains will be put on about December 1 next. This will give a through line from Sorel to St. Johns, a distance of 66 miles through a very fine farming country. It is the intention of this company next spring to build extensive docks on the St. Lawrence River at Sorel to handle freight from the interior for Europe via steamer from that point. The road is being operated by J. W. Dawsey of Ste. Hyacinthe, Que.

Waddington, Canton & Southern.—A small force of men has been set at work on the construction of this railroad at Waddington, N. Y., on the St. Lawrence River. The work now going on is under charge of Engineer Gordon S. Stayman. The railroad is projected to extend from the St. Lawrence River at Waddington through St. Lawrence County to the town of Canton, a distance of about 27 miles. James Spears, of Canton, N. Y., is President of the railroad.

West Virginia Central & Pittsburgh.—The reconnaissance for the extension of this line to the Pocahontas district in Virginia, now being made by F. A. Parsons as the engineer in charge, has reached Shaven's Fork of Cheat along which it will be continued for about 40 miles. The survey began at Elkins, W. Va., and was carried up Cravin's Run to the Shaven's Fork. It follows Shaven's Fork to the Cheat bridge and thence across the mountains to the Greenbrier River, following that stream to a point near the Pocahontas mines in Virginia. The line will be through a very rough country with maximum grades of over two per cent.

Wiscasset & Quebec.—The stockholders of the company at a recent meeting held at Wiscasset, Me., authorized the issue of \$300,000 in bonds to complete the road and to connect with the Canadian Pacific. The road is to be built this season from Wiscasset on the coast north to Burnham, Me.

Woodstock & Centreville.—After the annual meeting of the company, held recently, a contract for the construction of the road through New Brunswick between the towns named, was signed with Killeen & Moninger.

GENERAL RAILROAD NEWS.

Atchison, Topeka & Santa Fe.—The following table shows the operations of this company for the month of September, 1894, and for the three months to Sept. 30, compared with the same period of 1893.

ATCHISON, TOPEKA & SANTA FE, AGGREGATED SYSTEM.					
Month of September.	1894.	1893.	Inc. and Dec.	23	
Average oper. mileage....	9,321	9,344	D		
Gross earn.....	\$3,340,927	\$3,972,905	D	\$631,978	
Oper. expen.....	2,501,503	2,374,770	I	126,732	
Net earn.....	\$839,424	\$1,598,135	D	758,710	
Three Months to Sept. 30.					
Gross earn.....	\$9,203,618	\$11,364,449	D	\$2,160,831	
Oper. expen.....	7,290,885	7,403,636	D	112,751	
Net earn.....	\$1,912,733	\$3,960,813	D	\$2,048,080	

ATCHISON, TOPEKA & SANTA FE SYSTEM PROPER.					
Month of September.					
Average oper Mileage.	6,695	6,719	D	23	
Gross earn.....	\$2,424,765	\$3,030,568	D	\$605,803	
Net earn.....	\$563,925	\$1,276,659	D	\$712,734	
Three Months to Sept. 30.					
Gross earn.....	\$6,509,415	\$8,590,015	D	\$2,080,600	
Net earn.....	\$1,073,311	\$3,138,387	D	\$2,065,076	

Bedford Belt.—The contest for the control of this railroad, a belt line at Bedford, Ind., and the Bedford stone quarries, a valuable property, is now going on between Dr. W. L. Breyfogle, of Louisville, the present President of the railroad, and a Chicago syndicate. It seems that Dr. Breyfogle failed to meet an indebtedness of \$225,000 claimed by the Chicago syndicate to have been due on Nov. 1. They have consequently chosen officers to manage both properties, John R. Walsh, a large security holder, being named as General Manager. Dr. Breyfogle claims that his title to the property will not pass until Jan. 1 in any case, and whatever amount is due to the Chicago people will be paid before that date.

Des Moines, Northern & Western.—Judge Wilson, in the Federal District Court, at Des Moines, Ia., on Nov. 1, entered a decision in the suit brought by the Metropolitan Trust Co., of New York, to foreclose a mortgage for \$2,891,000 on the railroad. The road was ordered sold on Nov. 17.

Detroit, Bay City & Alpena.—This railroad was sold on Nov. 8 to a representative of Drexel, Morgan & Co. for the bondholders of the road. The consideration was \$1,000,000. The firm named has undertaken the reorganization of the road.

Excelsior Springs.—This 10-mile railroad through Clay County, Mo., is to be sold at Sheriff's sale at Liberty, Mo., on Nov. 19. The line was built in 1893 and forms a connection with the Chicago, Milwaukee & St. Paul at Excelsior Springs, and with the Wabash at Cooley's Lake on the north side of the Missouri River. The railroad is operated as an independent line with S. P. Scott, of Excelsior Springs, as President and General Manager.

Findlay, Fort Wayne & Western.—The officers of the Fort Wayne & Eastern Railroad of Indiana and of the Ohio Railway Co., of Ohio, last week filed articles of consolidation for those companies in the office of the Secretary of State of Ohio under the above title. The capital stock is placed at \$2,000,000 and the controlling interest of the railroad is said to be held by the Astors of New York. The consolidation is merely a formal act. The railroad is now operated from Findlay, O., to Baldwin, Ind., near the Ohio State line, 60 miles, and is being extended 20 miles through to Fort Wayne, Ind. G. L. Day, of New York, is President and C. G. Patterson, of 10 Wall street, New York, is General Manager.

Lexington & Eastern.—The officers of the new company, which is a reorganization of the Kentucky Union Railroad, have, it is understood, decided not to carry out the terms of the lease of the Lexington Belt Railroad, which was made by the officers of the Kentucky Union in 1890. The Belt Line bonds to the amount of \$175,000 were guaranteed six per cent. interest for a term of 99 years and the lessee also agreed to keep the road in repair, to pay all taxes and make necessary improvements. The officers now claim that the terms of this lease are onerous and unjust, and that under a decision of the Circuit Court of Appeals they have a right to refuse to operate the road, on the claim that the new company cannot be held to be a party to the lease.

Macon & Northern.—Judge Speer, of the United States Court, at Macon, Ga., has confirmed the sale of the

Macon & Northern Railroad to Alexander Brown & Co., with of Baltimore, with the condition that the amount of damage incurred in the wreck at Godfrey, a few weeks ago, be referred to a special master, who is to decide the amount to be deducted from the \$1,070,000 paid for the road. It is believed the loss to the road will be about \$25,000. The plans as to the future operation of the road, if there are any in particular, have not been disclosed by the purchasers, but local opinion is that it will be made part of the Seaboard Air Line, and a connecting link built between the road and the Georgia Southern, giving the Air Line a through route to Florida. A short track connecting the Macon & Northern, and Georgia Southern & Florida is now being built at Macon.

Natchitoches & Red River Valley.—This railroad was sold at Natchitoches, La., under foreclosure proceedings, and was purchased by General J. W. Behan and Mr. Bettram Beer, of New Orleans. The road is about 16 miles long from Natchitoches, La., north to the Texas State line.

Philadelphia & Reading.—The deposits of general mortgage four per cent. bonds under the Olcott-Earle plan of reorganization now amount to over \$4,500,000, which is sufficient under the terms of the mortgage to enable the committee to institute foreclosure proceedings should it seem desirable to do so.

Rio Grande Southern.—The National Bank of Commerce, in Denver, has begun proceedings before Judge Allen at Denver asking for the removal of President Jeffery, of the Denver & Rio Grande Railroad as Receiver of the Rio Grande Southern road. The Bank of Commerce is a creditor for \$25,000 and other local creditors have joined it in its application.

St. Catharines & Niagara Central.—W. F. Forsyth of Boston, as Manager of the Hamilton Radial Railway Co., has completed a negotiation with President L. S. Oillie, of this company, for the purchase of the railroad now operated between St. Catharines and Clifton (Niagara Falls) Ont., 12 miles. The new owners intend to carry out the project for extending the line from St. Catharines into Hamilton, Ont., as a steam road. At Hamilton it will connect with the electric railroads which the Hamilton Radial Co. proposes to build in several directions from that town. At present it has surveyed two lines, one through Millgrove to Guelph and another to Galt and Berlin, Ont. The electric lines will be substantially constructed and laid with 72 lb. rails and it is said to be the intention to transfer cars reaching Hamilton over the steam railroad to the electric lines which, when the whole plan of the Radial Co. is carried out will include branches to many of the towns within a radius of 50 miles from Hamilton.

St. Joseph Valley.—The Michigan Central is understood to have purchased the controlling interest in this railroad, which extends between Buchanan and Berrien Springs, Mich., about 10 miles. It is understood that the company will build an extension of the railroad to St. Joseph on Lake Michigan about 15 miles beyond its present northern terminus. The railroad has not been operated for the past year or so, but a few weeks ago a contract was given out to rebuild the railroad and prepare it for regular operation.

Valley (Ohio).—A substantial majority of the first mortgage bonds of the Valley Railroad of Ohio have been deposited under the reorganization agreement, and also a large percentage of the consolidated bonds. This agreement is that formulated by the first mortgage bondholders' committee, of which M. T. Herrick, of Cleveland. This plan is opposed by the Baltimore & Ohio, which owns a majority of the stock and second mortgage bonds, which were issued for the improvements made to the property by that company.

TRAFFIC

Traffic Notes.

We noted last week the fact that the weighing and inspection bureaus in central traffic territory are saving money for the roads at the rate of a million dollars a year. We have not seen the detailed figures of the official reports, but samples were published in an Indianapolis paper, showing, for the month of September, the following gains: At Indianapolis, gain in weight, 11,868,999 lbs.; in revenue, \$9,788; at Terre Haute, 4,479,550 lbs.; in revenue, \$6,591; at Louisville, 3,718,646 lbs.; in revenue, \$5,752; at Evansville, 1,663,623 lbs.; in revenue, \$3,037; at Vincennes, 550,692 lbs.; in revenue, \$558. Total gain, 22,281,510 lbs., \$25,748.

At a recent meeting of the Southern Railway & Steamship Association it was decided to establish car service (demurrage) associations throughout the Southern States. There will be a central office in each State.

The idea of establishing freight bureaus for the purpose of enabling the merchants of a city to act as a unit in dealing with the railroads seems to be well established in public favor, in spite of the fact that one or two such organizations have languished or died from lack of interest. Among the cities where such a project has recently been started is Charleston, S. C., where, it is said, a bureau will soon be established. It appears that the merchants of Charleston are specially fortunate in having a "pull," as it were, with the City Government. Under a local law they pay a license tax to the city, and they have asked the City Council to appropriate 10 per cent. of the proceeds of that tax for the maintenance of freight bureau. As the movement seems to be strong and unanimous we assume that it is likely to succeed.

The suit of the Interstate Commerce Commission against the Southern railroads to compel compliance with the Commission's order to reduce freight rates from Cincinnati southward, is now before the Supreme Court of the United States, and it has been set for hearing on March 4.

The September statement of the Cleveland Car Service Association shows that more cars were handled under the 24-hour average basis than under the regular 48-hour basis, 10,465 for the former and 10,287 for the latter. These two combined make up more than three-fourths of the total business handled, 6,681 cars being allowed 96 hours' free time. These latter are cars containing coal and coke.

The Pennsylvania lines west of Pittsburgh have given notice that hereafter mileage coupons will be accepted in payment for excess baggage charges.

Last month's freight movement through the Pennsylvania yards at Columbia largely exceeded the previous month's movement and was made up as follows: Eastbound, 2,097 trains composed of 64,345 loaded and 749 empty cars; westbound, 960 trains of 11,701 loaded and 51,090 empty cars.

Rates on provisions eastbound from Kansas City and St. Louis are utterly demoralized, cuts of 12 cents per 100 lbs. on a rate of 35 cents, St. Louis to New York, being reported.

The passenger representatives of the Union Pacific and Oregon Short Line and the Oregon & Railway Navigation

Co. have failed to agree on a division of through rates made necessary by the recent separation of the latter from the Union Pacific system. The Navigation Co. since making its traffic agreement with the Great Northern has demanded a greater proportion of the through rates than the Union Pacific is willing to concede.

The Southwestern Traffic Association has organized a weighing and inspection bureau.

Next week, when the winter time tables go into effect, the Philadelphia & Reading will shorten the time of several trains between New York and Philadelphia. The train leaving the latter city at 4 p. m. will run through in two hours. One train from New York to Washington will be quickened about an hour. The Pennsylvania at the same time will put on a new fast train each way between New York and Washington.

Chicago Traffic Matters.

CHICAGO, Nov. 14, 1894.
Eastbound shipments last week show a slight decrease by rail and a decrease of 50 per cent. by lake. Westbound traffic, however, is unusually heavy and in a measure offsets the light eastbound tonnage. Lake shipments of grain last week were: 208,000 bu. wheat, 267,937 bu. corn, 307,000 bu. oats, 238,122 bu. barley, 50,753 bbls. flour.

The advanced eastbound all-rail grain rates went into effect Nov. 12 and all the roads claim to be quoting them. The only argument to be advanced in support of the always current rumor that this is not being done, is the light tonnage and low prices on grain. If the advance has the effect of raising the minimum rates 5 cents it will of course benefit the roads by so much, and I presume that the most the traffic associations hope for is that it will stiffen rates a trifle. It is proved that until the pending amendments to the Interstate Commerce law are enacted there will be no stability to rates in territory east of here. Rates west of Chicago are fairly well maintained since the new agreement of the presidents went into effect.

The Western Passenger Association is in session to-day considering a number of important matters. The action of the Advisory Board in regard to meeting the competition of the Canadian Pacific will undoubtedly be ratified by the Association. The action of the Burlington, Cedar Rapids & Northern in giving notice of intention to apply short line rates from Waterloo, Ia., through Cedar Rapids and Columbus Junction to all Montana and North Pacific coast points is under consideration. Considerable feeling has been caused because this road, which is a member of the Association, elected to take independent action.

The Chicago Great Western has appealed to the Western Passenger Association for protection against the Chicago, St. Paul, Minneapolis & Omaha in using eastbound rates from St. Paul which were not agreed to by the Great Western. The rates in question were agreed to by the members of the St. Paul Rate Sheet Committee, of which the Omaha line is a member and the Great Western is not. The latter protested in vain and now falls back on the Western Passenger Association agreement and charges the Omaha with rate cutting.

Owing to the existence of contracts not expiring until Jan. 1, 1895, it has been found impracticable for the Central Traffic Association lines to advance commodity rates on Dec. 1, as was arranged at the Cleveland meeting. The effective date of the proposed advance is therefore postponed until Feb. 1, 1895.

Eastern roads are reporting a scarcity of coal cars. The Illinois Central and other lines having outlets to the South report an increasing heavy travel in that direction in advance of the regular winter tourist travel.

Commissioner Midgley has issued circular letters calling upon the parties to the St. Louis agreements to stand firm and not be stampeded by malicious reports to the effect that the recent agreement for diversions was already inoperative owing to refusals to divert tonnage. He states that he has positive assurances that the diversion orders are being complied with. He also calls attention to a misunderstanding on the part of some of the roads that the permission given to pay 7½ mills mileage on tank cars was retroactive. He says that for the period between the adoption of the 5-mill rate and Oct. 22, when the same was modified, no more than this amount should be allowed.

Considerable progress is being made in securing additional signatures to the 1895 pass agreement, but its success is not yet assured.

Western lines are considering the advisability of changing their rules in regard to the issuance of half fare permits, so as to put the control of these tickets in the hands of a special committee the coming year. There is considerable opposition to the scheme.

The shipments of eastbound freight, not including live stock, from Chicago, by all the lines for the week ending Nov. 10, amounted to 44,965 tons, against 46,476 tons during the preceding week, a decrease of 1,511 tons, and against 54,932 tons for the corresponding week last year. The proportions carried by each road were:

ROADS.	WEEK TO NOV. 10.		WEEK TO NOV. 3	
	Tons.	p. c.	Tons.	p. c.
Michigan Central.....	3,098	6.9	2,388	5.1
Wabash.....	3,726	8.3	4,208	9.0
Lake Shore & Mich. South.	4,342	9.6	4,364	9.4
Pitts., Ft. Wayne & Chicago.	5,006	11.1	5,934	12.6
Pitts., Cin., Chi. & St. Louis	7,331	16.3	8,922	19.2
Baltimore & Ohio.....	4,311	9.6	3,518	7.6
Chicago & Grand Trunk.....	2,920	6.5	3,829	8.2
New York, Chic. & St. Louis	6,504	14.5	5,915	12.6
Chicago & Erie.....	5,760	12.8	5,562	12.1
C., C. C. & St. Louis.....	1,967	4.4	1,956	4.2
Totals.....	44,965	100.0	46,476	100.0

Of the above shipments 1,601 tons were flour, 10,914 tons grain and mill stuff, 11,197 tons cured meats, 10,940 tons dressed beef, 1,285 tons butter, 1,452 tons hides, and 5,186 tons lumber. The three Vanderbilt lines carried 31.0 per cent, the two Pennsylvania lines 27.4 per cent. Lake lines carried 23,795 tons against 46,499 tons last week.

The Nebraska Rate Law.

A dispatch from Omaha says that Justice Brewer has rendered a decision in the Nebraska maximum rate case in which he holds that the law is constitutional, but sustains the injunction preventing its being put into operation on the ground that the reduction in rates is exorbitant. This law, known as the Newberry bill, was passed two years ago and made important reductions in freight rates. It was to go into effect Aug. 1, 1893. The injunction was secured by the railroad interests. The decision, it will be seen, is exactly in line with that of the Supreme Court of the United States on the Texas law, also written by Justice Brewer, which was printed in the Railroad Gazette of June 8 last.